A

Practical Treatiſe
ON
BREWING:

In which are contained,
Several INSTRUCTIONS
AND
PRECAUTIONS,
Uſeful and neceſſary in the EXERCISE of that ART.

By *WILLIAM REDDINGTON*,
Late of WINDSOR, BREWER,

LONDON:
Printed for JOHN CLARKE, under the *Royal Exchange*. MDCCLX.

PREFACE.

IN the following Treatiſe, the Reader is not to expect a regular Syſtem of this Art, but a Collection of ſuch practical Obſervations as were the Reſult of an inquiſitive Diſpoſition, and a reaſoning Turn of Mind, aſſiſted by great Experience in an extenſive Buſineſs.

The Author, Mr. REDDINGTON, *was an upright, benevolent, friendly Man, affectionate to his Relations, ever ready to ſuccour the Diſtreſs'd, who ſenſibly feel his Loſs.*

He had ſome Acquaintance with moſt Sciences, but was chiefly expert in Arithmetic and the Mathematics.

In the Courſe of his Management of this Buſineſs, he had frequent Opportunities of obſerving that many Improvements might be made in it; and he was not ſo narrow-minded as to wiſh to confine the Benefit of them to himſelf alone.

Induced by a Deſire of promoting the Good of others, he drew up the Obſervations which are here communicated to the Reader, and being prevented by Death from publiſhing them himſelf, left them to the Care of a Friend, who has cauſed them to be reviſed and fitted for the Preſs, and humbly hopes they may anſwer the Author's good Intention of being uſeful to thoſe who are employed in this Art.

THE CONTENTS.

CHAP. I.

THE Deſcription of an Inſtrument contrived by the Author, for eſtimating the Strength and Value of Beer Page 1

CHAP. II.

Of trying waters by the Touch and Taſte, and what Sort of Water is beſt for Brewing, and what Difference the Weather makes in the Softneſs or Hardneſs of the Waters - - 4

CHAP. III.

Concerning the Purging of Springs 7

CHAP. IV.

Concerning Rain-Water - - 8

CHAP. V.

Of Springs ariſing from a clayey Soil 8

CHAP. VI.

Of Water ſpringing from a chalky Soil 9

CHAP. VII.

Of the proper Method of taking the Liquor - - Page 10

CHAP. VIII.

What Time a Maſh ſhould ſtand 21

CHAP. IX.

Of the Method of hopping the Beer 23

CHAP. X.

The Reaſon why brown Beer requires as many Hops as pale Beer. - 25

CHAP. XI.

Of the Opinion of ſome Perſons, that Beer is not good till the Hops are rotted in it. - - - 26

CHAP. XII.

Why Beer requires more Hops in the Summer than in Winter - - 27

CHAP. XIII.

What Regard is to be had to the Kind of Cellaridge in hopping the Beer - 28

CHAP. XIV.

That fine pale Beer is not profitable either to Brewers or to private Families 29

CHAP. XV.

How fine pale Beer ſhould be managed in the Tun - - - 30

CHAP. XVI.

Of the Time of boiling the Worts 31

CHAP.

CHAP. XVII.
Of the Form and Size of the Backs P. 33
CHAP. XVIII.
Of the Sediment riſing through the Worts in the firſt Back. 36
CHAP. XIX.
Of the Summer-made Malts - 37
CHAP. XX.
How to proceed when there is a Scarcity of Yeaſt - - - 40
CHAP. XXI.
Of the different Sorts of Yeaſt, and how to proceed with them - 41
CHAP. XXII.
Of that Sort of Worts which will not be fine in the firſt Back - 45
CHAP, XXIII.
Of letting down the Wort - 47
CHAP. XXIV.
Why a Guile of all ſmall Beer is the hardeſt of any Beer to be brought to work in the Guile Tun - - 49
CHAP. XXV.
How Worts ſhould be let down in temperate Weather - - 51
CHAP. XXVI.
How Worts ſhould be let down in very cold Weather - - 52
CHAP. XXVII.
Why the Pipes from the Backs to the Guile Tun ſhould often be turned going 53

CHAP. XXVIII.

Precautions to be taken in Regard to the Quantity of Yeaſt to be uſed in pitching a Tun - - Page 54

CHAP. XXIX.

Why moſt can be made of the Malt in warm Weather - - 55

CHAP. XXX.

How a Tun ſhould be pitched in very warm Weather - - - 56

CHAP. XXXI.

How common brown Ale is to be yeaſted 59

CHAP. XXXII.

How to furniſh yourſelf with an extraordinary Liquor - - 60

CHAP. XXXIII.

How to proportion the Quantity of Yeaſt to the different Hardneſs or Softneſs of the Water uſed in Brewing 62

CHAP. XXXIV.

Of a Guile of pale Beer being forced out of the Tun before it has worked to its proper Pitch - - 64

CHAP. XXXV.

Of pale Beer in the Caſk being firſt fine and afterwards foul - 66

CHAP. XXXVI.

Of the Neceſſity of well hopping the Beer, in order to preſerve its Strength 69

CHAP. XXXVII.

How Ale ſhould be managed in the Guile-Tun - - - 70

CHAP. XXXVIII.

Of the ill Effects of letting Beer down very cold, in cold Weather Page 73

CHAP. XXXIX.

Of the Method of ſtoaking the Fire 74

CHAP. XL.

In what Sort of Caſks the Beer ſhould be put, in order to its becoming fine ſoon - - - 76

CHAP. XLI.

How to make the moſt of a Brewing. 77

CHAP. XLII.

Of the ill Effect of over-liquoring the Goods - - - 78

CHAP. XLIII.

The Reaſon why ſome Beer will have no Yeaſt produced from it when it is purged. - - - 79

CHAP. XLIV.

Of the Methods of preſerving Yeaſt 84

CHAP. XLV.

How to draw off the firſt Back fine and cool, without leaving the Virtue of the Hop with the Lees. - 86

CHAP. XLVI.

How to manage a Guile of Beer in exceſſive hot Weather - - 87

CHAP. XLVII.

The Cauſe of a Tun's appearing, in its firſt working, with a large bladdery Head, and what Methods are proper to be taken in this Caſe - - 90

CHAP.

CHAP. XLVIII.
Why the firſt Back ſhould not be ſwept till laſt, in brewing keeping Beer Pa. 93
CHAP. XLIX.
How to manage a Guile of Beer in order to its becoming what is called London *Porter* - - - 94
CHAP. L.
What cauſes ſmall Beer to appear with a large bubbly Head in the Guile Tun 96
CHAP. LI.
Why Beer will be ſubject to be foul if it be worked off cool in the Guile Tun 97
CHAP. LII.
Of the ill Conſequence of working off pale Beer too ſoon - - 99
CHAP. LIII.
The Cauſe of a curdly, yeaſty Head on a Guile of Beer - - 101
CHAP. LIV.
Why Beer will give over working and afterwards work afreſh - 102
CHAP. LV.
How a Guile of pale Beer ſhould appear during the Time of its Working 103
CHAP. LVI.
When a Tun of Beer ſhould have the greateſt Supply of Yeaſt - - 104
CHAP. LVII.
Why ſtrong Beer requires moving in the Guile Tun - - - 105

CHAP. LVIII.

How a Guile of Beer ſhould be pitched in very cold Weather Pag. 106

CHAP. LIX.

The Reaſon of pale Beer's appearing with a light frothy Head - - 108

CHAP. LX.

How to manage the Working of Beer for long Keeping - - 108

CHAP. LXI.

How to know when a Guile of pale Beer is fit to be purged - - 110

CHAP. LXII.

Why the ſweeteſt Wort requires the moſt Working in the Tun - - 114

CHAP. LXIII.

Of the Danger of being deceived in judging merely by the Eye when a Guile of pale Beer is fit to be cleanſed - - 115

CHAP. LXIV.

The ill Effect of Beer working too long in the Guile-Tun - 116

CHAP. LXV.

How to judge by the Eye of cleanſing a deep or ſhallow Tun - - 117

CHAP. LXVI.

Of the ill Effect of pitching a Guile-Tun to a ſmall Quantity in warm Weather with the uſual Quantity of Yeaſt - 118

CHAP. LXVII.

Of the Effects of taking the Liquor too ſharp or not ſharp enough - 119

CHAP.

CHAP. LXVIII.

How to know when a Tun of Beer wants a Supply of Yeaſt - Page 120

CHAP. LXIX.

How a Guile-Tun ſhould be built 132

CHAP. LXX.

In what Part of the Hops their Virtue reſides - - - 125

CHAP. LXXI.

Why more Beer is ſpoiled in warm Weather than in any other weather 126

CHAP. LXXII.

Why the Weather, which is to be expected, ſhould be conſulted before you hop your Beer, as well as the Weather at the Time of Hopping it - - 128

CHAP. LXXIII.

How to manage Wort when the Backs are very much foxea - 130

CHAP. LXXIV.

By what Means the Backs become foxed 131

CHAP. LXXV.

Why exceſſive warm Weather is preferable to exceſſive cold, for ſmall Brewings 132

CHAP. LXXVI.

The Cauſe of a Tun of pale Beer appearing with a ſmall frothy Head in its firſt Working, and what is the proper Management in this Caſe - 134

CHAP. LXXVII.

The Method of working Beer brewed from new Malts - - 135

CHAP. LXXVIII.

Why new or old Beer drinks beſt in warm Weather - Page 136

CHAP. LXXIX.

What Beer is proper to be fined by ſpirituous Liquors - - 137

CHAP. LXXX.

How to manage with bad Yeaſt - 138

CHAP. LXXXI.

How ſtale Beer is to be managed 139

CHAP. LXXXII.

Of frequent Maſhing - - 141

CHAP. LXXXIII.

How to produce the moſt Yeaſt from a Guile of Beer - - 142

CHAP. LXXXIV.

By what Miſtakes ſour Beer is often made worſe, inſtead of being made better 144

CHAP. LXXXV.

Why the ſmalleſt bodied Barleys ſhould be uſed for making pale Malt - 145

CHAP. LXXXVI.

How to brew a Brewing of all ſmall in the Copper - - - 146

CHAP. LXXXVII.

What Beer ſhould be ſtopped cloſe, and what ſhould not - - 148

CHAP. LXXXVIII.

How Beer ſhould be bottled for Shipping - - - 149

CHAP.

CHAP. LXXXIX.
What Sort of Beer requires a Feed P. 150
CHAP. XC.
Of the Method of corking Caſks 151
CHAP. XCI.
How to cure a ſtinking Caſk 152
CHAP. XCII.
How to preſerve the Virtue of the Hop with every ſeparate Wort - 154
CHAP. XCIII.
How to prevent the Fox from gathering, when it appears - 155
CHAP. XCIV.
How to work Beer brewed from old Malts - - 156
CHAP. XCV.
The Cauſe of a Tun of pale Beer not appearing on Work in about twelve or ſixteen Hours after its being pitched, and how to manage in ſuch a Caſe - 157
CHAP. XCVI.
How to prevent hard Beer from growing worſe - - - 159
CHAP. XCVII.
How to know when Beer is at the beſt 160
CHAP. XCVIII.
Why the Worts will get warm in working, though they were let down cool 161

CHAP. XCIX.
Wherein Starting is a Help to the Beer 163
CHAP. C.
How Small Beer ſhould be let down into the Guile-Tun - - 164
CHAP. CI.
When a Guile of ſmall brown Beer is to be cleanſed - - 165
CHAP. CII.
How to hop ſmall Beer 166
CHAP. CIII.
How to make the moſt of the laſt Wort. 167
CHAP. CIV.
When to cleanſe a Guile of pale ſmall Beer 168
CHAP. CV.
How to lay the Malts in the Maſh Tun 169
CHAP. CVI.
How a Guile of ſmall Beer ſhould be moved in the Tun - - 170
CHAP. CVII.
How to make the moſt of the Lees in Summer Time - - - 171
CHAP. CVIII.
How pale keeping Beer ſhould be yeaſted 172
CHAP. CIX.
How a foxed guile of Beer ſhould be yeaſted when it is to be pitched - 174
CHAP. CX.
Why no Feed is good for ſour Beer, except a bitter one - - 175

CHAP.

CHAP. CXI.
What Order to follow in filling the Storehouſes. - - Page 176
CHAP. CXII.
Why old Malts ſhould generally have new Malts mixed with them - 178
CHAP. CXIII.
How to keep back a Guile of Beer in Caſe of Need - - 179
CHAP. CXIV.
When the extraordinary ſtrong Beer ſhould be brewed - 180
CHAP. CXV.
The beſt Way of ſtopping a Leak 181
CHAP. CXVI.
How ſmall Beer ſhould be managed for long Keeping - - 182

A PRAC-

A
PRACTICAL TREATISE
ON
BREWING.

CHAP. I.

The Deſcription of an Inſtrument contrived by the Author, for eſtimating the Strength of Beer.

THIS Inſtrument, which I call the ſenſible Float, was contrived by me, when I firſt began to enquire into the Theory of Brewing; and it is to be made in the following manner:

Take ſome of the beſt Bung Corks, and a ſmall round Stick with inches and tents on the top, and a piece of lead at the bottom, cut in the ſame form as the Corks, from an Inch to the Diameter of the Stick; put as many Corks on the Stick (with a Piece of Lead between every Cork) as ſhall make the whole Inſtrument about eighteen inches, or two feet long. The Diameter of the uppermoſt Cork ſhould be about three Inches, and that of the loweſt one Inch. This Inſtrument is to be put into a glaſs Tube, thirty Inches deep, and four broad: Fill this Tube with Water, and put a wooden Cover over it, with a hole in the center, juſt big enough for that part of the Stick which is marked with Inches to move. The Leads ſhould give the Inſtrument ſuch a Weight, as to cauſe it to ſink four Inches under the ſurface of the Water: Then if you pour out the Water, and fill it with your ſtrongeſt Beer, to the ſame Height as the Water, you will find the Stick riſe conſiderably higher than it did in the Water: If it ſhould riſe ſo as to appear above the ſurface of the Beer, more Weight ſhould be added, that it may ſink lower in the Water. As many Shillings as you value your Beer at, ſo many Diviſions you ſhould make between the Height to which the Inſtrument riſes in the Water, and the height to which it riſes in the Beer. By this method, you may eſtimate what proportion the value of any Beer bears to the price of the ſtrongeſt; for ſuppoſe the ſtrongeſt Beer to be valued at thirty Shillings a Barrel, by putting one thirtieth part of water to twenty-nine Parts of this Beer, into the Tube, the Inſtrument will not float ſo high, by one of the thirty diviſions.

Perhaps a long Vial, made picked inſtead of being flat, would ſerve the ſame purpoſe, if it were ſtopt with a Cork, with a Gauge-Stick in the middle; and as the Air in it would cauſe it to float, by putting Shot in it, you may ſink it to any depth you require; and the larger this or the former Inſtrument is, the more convenient they will be; becauſe the diviſions marked between the different Heights to which it riſes, will be more diſtinguiſhable.

CHAP. II.

Of trying Waters by the Touch and Taſte, and what Sort of Water is beſt for brewing; and what Difference the Weather makes in the Softneſs or Hardneſs of the Water.

YOU may diſtinguiſh Waters by the feeling, thus: If you dip your hand into the hard Water, you will find it cold and harſh; the ſoft Water will feel warm and ſoft; and they will affect the taſte with the like difference of ſenſations.

The ſofteſt Water is in my Opinion the beſt for brewing, and that for two reaſons.

Firſt, It penetrates the Malt more eaſily, and in a greater Degree than hard Water, and therefore is more adapted to get out the whole ſtrength of it: That it penetrates the Malt better is to be proved by a very plain Experiment. If you take two Waſhballs of equal Size, and ſtir them about in equal Quantities of different Waters (uſing hard Water to the one, and ſoft to the other) for the ſame Time, you will find when you take them out, that the Waſhball which was ſtirred about in the ſoft Water, has loſt more of its weight than that to which the hard Water was uſed. Hence it is plain ſoft Water penetrates ſooner than hard.

A ſecond reaſon why ſoft Water is to be preferred, is, that it more readily purges itſelf than hard Water; and this is proved by the following Experiment.

Take an equal Quantity of theſe two Sorts of Water, and put them in two Veſſels of an equal Size; then pour into the ſame Veſſels a quantity of Yeaſt, and of new Wort, each equal in weight to the Water, and the ſoft Water will work ſooneſt, which is a proof of its purging itſelf moſt readily. Beſides, this Sort of Water requires leſs Hops than hard Water; for Beer made from the hard Water will purge or ferment more frequently after it is brewed, than that made from the ſoft; and as every fermentation in the caſk brings with it a Danger of the Beer's becoming flat and vapid, or ſour, in order to prevent this Accident, an extraordinary ſupply of Hops is neceſſary, to ſupport the Liquor under theſe repeated fermentations.

It is very uſual, and often very proper, to draw Water from the Well into the Backs, ſome Time before you uſe it, in order to let it purge itſelf once or twice; but this Method is not always to be practiſed; for in froſty Weather the Water is warmer, and conſequently ſofter, in the Well than out of it, as you may gather from hence;—if you obſerve the Water of a deep Well, in a froſty Morning, you may plainly perceive a warm Steam aſcending from it;—So if in this Caſe you raiſe it from the Well, and expoſe it to the open Air, to ſoften it by letting it ferment, the Event will diſappoint your Expectation, and inſtead of becoming ſofter, it will grow harder.

CHAP. III.

Concerning the Purging of Springs.

WHEN Springs paſs through any porous Earth, except Rocks, Gravel, Quick-Sands, or Chalk, the Water will have a taſte like the Earth through which it paſſes, eſpecially when in a State of Fermentation, as it is ſometimes by a ſudden Alteration of the Weather from cold to warm; and ſometimes, after it is drawn into the Backs, that inſtead of turning it upon the Malt, you will be ready to throw it down the Drain; and the Smell of it, after it is converted into Beer is ſtill worſe, eſpecially when the Liquor is juſt at the height of its working. If the Brewing be for pale Beer, this taint will go off before it has done working, and the Liquor is not the worſe, but (I think) rather the better for it.

CHAP. IV.

Concerning Rain Water.

YOU are to judge of Rain Water from the diſpoſition of the Air at the Time of its falling, and that is to be preferred which falls when the Air is warmeſt; for the warmer the Weather, the ſofter is the Water: And as this natural warm Rain Water is the beſt, ſo other Sorts of Rain Water, ſuch as melted Hail, Snow, or Sleet, or the Rain which often follows a Sleet, are each bad in different degrees, according to their degree of Coldneſs; that which comes from Hail being the worſt: But all theſe (when kept any Time) will alter with the Weather.

CHAP. V.

Of Springs ariſing from a clayey Soil.

WATER ſpringing from a clayey Soil is the worſt of any; for as all Waters will partake ſomething of the

Nature of the Soil from which they ſpring, and as (in my Opinion) no Earth is ſo cold as Clay, the Water ſpringing from it will be colder, and of conſequence harder, than Water ſpringing from any other Soil: And though it is not uſual to find a Spring in Clay itſelf, yet it may happen that a clayey Soil may have a Spring under it, of force ſufficient to raiſe its Waters ſome Height in the Clay, by which means they will partake of the qualities of the Clay, though not in an equal degree as they would of thoſe of any Earth, from which the Spring itſelf immediately proceeded.

CHAP. VI.

Of Water ſpringing from a chalky Soil.

THIS is preferable to Water ſpringing from any other Soil, for theſe Reaſons:

Firſt, It is of a (pale) whitiſh colour, which is a conſideration of ſome Importance in brewing pale Beer.

Secondly, It is ſofter, and purges more readily, when expoſed to a warm Air, than the Water of other Springs. Now the more readily any Water purges before it is converted into Beer, the leſs it is ſubject to purge after that converſion; and this is a great Advantage, becauſe the oftener it purges after it is converted into Beer, the more apt the Beer is to grow ſour or vapid.

CHAP. VII.

Of the proper Method of taking the Liquor.

TO proceed properly herein, it is firſt of all neceſſary, to know how to diſtinguiſh well between the different Kinds of Malt: I ſhall however defer (as yet) deſcribing each particular Sort, and only mention what Kinds of Malt, and what kinds of Liquor ſuit each other: And, in the firſt Place, I ſhall ſpeak of the pale Malts.---That pale Malt which is made as good as poſſible, by being moderately worked, well floored, and well dried; not made at all ſlack, and regularly ground, ſo as not to be powdered, will bear the ſharpeſt Liquors of any. Now as few Coppers will contain Liquor enough to maſh the firſt Time, your Copper ſhould at firſt be filled only ſo high as to avoid the Danger of burning: And for your firſt Maſh, to every twenty-two barrels and one firkin of boiling Liquor (which is the quantity my Copper at home contains, when filled within ſeven Inches of the Brim, ſo as to boil without Danger of burning) you ſhould put five Barrels, one Firkin, and a half of cold Liquor, (which Quantity will fill up the remaining ſeven Inches) and for your ſecond Maſh, to every twenty-two Barrels and one Firkin of boiling Liquor, put eight Barrels of cold Liquor. For the third Maſh, to the ſame Quantity of boiling Liquor, three Barrels of cold. For the fourth, the ſame Proportion of cold Liquor to boiling Liquor, as for the ſecond. For the fifth, to the twenty-two barrels and one firkin of boiling Liquor, one Barrel and one kilderkin of cold Liquor.

Every Brewer ſhould, when the top has done waſting, inſpect his Goods, before he takes the next Liquor, that he may know whether he has committed any Error in judging of his Malts, or in taking his Liquor. If part of the Worts only be let out, this can be diſcovered by ſqueezing a handful of them, taken a little below the Top; and if you find them more greaſy and glutinous than common, you ſhould not take the next Liquor ſo ſharp as uſual; but if the whole Wort be let out, you may judge better, as well from the quantity of the Wort, as from the feel of your Goods; and if you find a leſs quantity of Wort than common, and that your Goods feel glutinons and greaſy, you ſhould take your next Liquor not ſo ſharp as uſual.

The Reaſons why the Liquors for each Maſh ſhould be taken as above deſcribed, are as follow, for each particular Maſh:

Firſt, This Degree of Sharpneſs in the Liquor is the proper Medium for getting the ſtrongeſt Worts, and the greateſt quantity of them; whereas neither of the extremes will anſwer both theſe purpoſes (though each may effect one of them in a greater degree than this middle Way) for if the Liquor be taken ſomething ſharper, without making any difference in the time of its ſtanding, the Worts will indeed be ſtronger, but not in ſo great quantity becauſe it will make them glutinous, and, in ſome Meaſure, what we call ſet: And if the Liquor be taken ſlacker, it will produce more Worts, but not ſo ſtrong; nor is this all the Inconvenience attending theſe two Extremes; for the ſharp Liquor will be likely to ſet them, and ſo prevent your extracting the Subſtance from them: And as to the ſlack Liquor, it does not extract ſo much of the Subſtance as you ought to have; and if it ſtands the uſual Time in order to penetrate the Worts, they will be in great Danger of being foxed in your under Back, as they are to wait there for the next Piece of Wort to make up a Copper.

The Reaſon why the ſecond Liquor ſhould be ſo much ſlacker than the firſt; is, that in the firſt, the quantity of Malt, to which they are lėt out, being cold, takes off great part of the ſharpneſs; and as Malt is of a diſſolvable glutinous nature, (and no glutinous matter will ſo readily ſeparate itſelf from the body which contains it by a penetrating Liquor, as by one juſt of Sharpneſs ſufficient to deprive the containing Subſtance of it) I believe this Liquor to be of the right Degree of Sharpneſs (conſidering the Quantity of Liquor there is with the Goods) to ſeparate the glutinous Part of the Malt from the reſt; and the Malt feeling dry to the hand is the proof of this.

The reaſons why the third Liquor is to be ſo ſharp are theſe:

Firſt, There is not the ſame danger of making a pudding of the Goods as at firſt, becauſe Part of the Subſtance which occaſions this Effect is gone from them with the Wort, in the firſt Maſh.

Secondly, By the Liquor's being taken ſharper, it will keep in the heat the longer, ſo as the better to penetrate and diſſolve the Subſtance of the Malt, for which the ſecond Liquor did but little more than clear the way.

Thirdly, It will bear to lie longer than the ſlack Liquor without Danger of foxing.

For the fourth Liquor the ſame Reaſons will account as did for the ſecond.

For the fifth, the Reaſon why it ſhould be taken ſharper than any of the former, is this, that Part of the Subſtance of the Malt remaining undiſſolved in the former Maſhes, is of courſe the moſt difficult to be diſſolved, and could not be penetrated till the other Liquors had diſſolved the reſt, and cleared the Way to it. Now this ſharper Liquor will allow you not only to maſh it longer, but alſo to let it lie longer, in order to its being penetrated, without any danger of being foxed.

I am next to mention what Liquors are proper for brown Malts.

The Reaſon why there ſhould be a Difference in the Liquors for pale Malts, and thoſe for brown, is this: ſuppoſe the pale and brown made equally good in their Kinds, and both made as good as poſſible, the pale Malt will not bear ſo much flooring as the brown, becauſe of the danger of diſcolouring it; and becauſe it cannot bear ſo much flooring, it will not take ſo much Fire as the brown.

The firſt Liquor for the brown Malt ſuppoſed as above to be made as good as poſſible) ſhould be taken in the Proportion of ſix barrels of cold Liquor, to every twenty-two barrels and one firkin of boiling Liquor; for the ſecond Liquor, to the ſame Quantity of boiling Liquor, put eight barrels and one kilderkin of cold; for the third, three barrels and one kilderkin; for the fourth the ſame as for the ſecond; and for the fifth, to every twenty-two barrels and one firkin of boiling Liquor, put two barrels of cold. But if any of the brown Malts ſhould be over-worked, or have long flooring, or be moderately dried down, or become ſlack or low-ground; as theſe are all Properties which render them more eaſily diſſolvable, ſo that more of their ſubſtance may be extracted with leſs liquor (than is requiſite to the beſt Malts) if you were to take the ſame Liquor at firſt for Malt endued with all or moſt of theſe properties as you do for the beſt Malts, your Worts would be too glutinous. Every Brewer, therefore, before he takes his liquor, ſhould carefully examine what are the properties of his Malt; and the more of thoſe juſt mentioned he finds, the ſlacker his liquor ſhould be: Suppoſe, for inſtance, it has two of theſe properties, one kilderkin more of cold liquor ſhould be put to the before-mentioned quantity of boiling liquor, both for the brown and pale Malts indued with any of theſe properties; and ſo in proportion to the number of theſe properties with which theſe Malts are indued. As to the liquors after the firſt, you will ſee by the running of the firſt, whether you have taken it too ſlack or too ſharp; and if you have done either, the next muſt be reverſed; but if you have taken the firſt right, you may proceed as directed above. A Difference is likewiſe ſometimes neceſſary to be obſerved in taking the firſt Liquor, though it be for the ſame frale of Malt; for if one frale of Malt be ground very ſmall, and another very high, that which is high ground will bear the liquor ſharper than the other, by two barrels in thirty.

As to the ſhort-worked, under-floored, and ſlack-dried, or high and quick-dried Malts, or thoſe that are got ſlack, or were low ground, if you were to take the liquor deſcribed above, for any of theſe ſorts of Malts, there would be more Danger of making a real pudding with theſe Malts, than with thoſe that are the moſt eaſily diſſolved; and in the ſhort-worked, under-floored, and very ſlack-dried Malt, for Want of the Meal being fully converted into Malt, you may be ſaid to be at work on a Subſtance that is not properly either Meal or Malt, but both; for that part which would diſſolve into a fluid, for making Beer, is obſtructed in its ſeparation from the ſubſtance of the Malt, by the mealy ſubſtance, which is become fitter ſor making cakes than ſor diſſolving into a fluid for beer.

As to the high and quick-dried Malts, if they are worked ſhort, and floored but for a ſhort Time, they will be hard, and if they have long working and flooring, they will likewiſe be hard, of a glaſſy nature, and liable to become glutinous, if the ſame Liquor be uſed to them as is proper for the beſt kind of Malts.

To get the Strength from theſe Malts you ſhould proceed as in thoſe which are over-worked, long floored, and moderately dried down; only the liquor ſhould not be taken ſo ſharp as for thoſe which dry freely; but more liquors, and a longer Time, are requiſite to get the Subſtance from theſe bad Malts; and, after all, it cannot be fully extracted from them, even though you have more Wort by a third Part; neither will they work ſo well, for want of being more malted: beſides, the Beer made from them is more ſubject to be foul and to drink flat; and when the liquor is taken ſo ſharp as to cauſe the maſh to be glutinous, the glutinous fluid which is left behind is the ſtrongeſt; for all thin fluids will ſeparate from a ſubſtance more readily than glutinous Fluids; ſo that unleſs you clear away the thick glutinous fluid from the ſolid ſubſtance, you will ſtill leave a ſtronger behind at every Maſh, than that which you draw off; and if you ſhould have more Wort, by thus drawing off the fluid from the ſubſtance, than will bear mixing together, ſpread it ſo thin as that it may not be damaged, and uſe it in your next brewing: If you uſe it with your firſt liquor, you muſt not let it ſtand ſo long as uſual; and if you apprehend that the five maſhes will not extract all the goodneſs of the Malt, you may maſh twice for the laſt Wort, as you did for both the other Worts; and take the laſt liquor the ſame as the third and fourth, which draws off what the other had begun to penetrate.

CHAP. VIII.

What Time a Maſh ſhould ſtand.

THE firſt Maſh ſhould be let go in two hours and a half, the ſecond in a quarter of an hour after it is maſhed, the fourth in the ſame time: The other Maſhes may ſtand as long as your following proceedings will allow.

Two hours and a half is a ſufficient time for the firſt Maſh to ſtand, becauſe in that time it will penetrate far enough to make the fluid as glutinous as it ſhould be, conſiſtently with its being able to ſeparate itſelf from the Malt; whereas, were it to ſtand much longer, ſcarce two parts in three of the Wort would be ſeparated from the Malt in the uſual ſpace of Time; and if you let the liquor go ſooner, you would not get enough of the Malt.

The reaſon of letting the ſecond Maſh ſtand but a quarter of an Hour, is to prevent the firſt piece of Wort, which waits in the under Back, from being foxed, of which it would be in danger, if it ſtaid above a quarter of an hour there, becauſe it never comes off from the Malt ſo hot as any of the other liquors. The Reaſons for the Time of ſtanding of the fourth Maſh are the ſame; and the third and fifth Maſh may ſtand as long as you have Time to let them; becauſe, being both penetrating liquors, and taken very ſharp, there is no danger of their becoming ſo glutinous as not to ſeparate from the Malt, nor of the third Maſh becoming foxed or foul, under five or ſix Hours; and as to the fifth Maſh, if it were to ſtand ſeven or eight Hours, it would receive no damage of this Kind: And as there is no Danger in letting theſe Maſhes ſtand longer than the others (but not longer than the liquor retains its heat, for when that declines, its penetrating power declines alſo) ſo it is the more neceſſary they ſhould be allowed a conſiderable Time to ſtand; becauſe the ſubſtance in this is harder than that which is to be diſſolved by the other Maſhes.

CHAP. IX.

Of the Methed of hopping the Beer.

MOST people hop their Beer by the barrel, though few agree in the quantity of Hops to be allowed; ſome allow but one pound to a barrel, ſome leſs, and ſome ſeven or eight Pounds. This method of hopping the Beer by the barrel, is, in my Opinion, very injudicious; for ſuppoſe one Brewer to make one barrel of ſtrong Beer from a quarter of Malt, and another to make two barrels, and both to allow three or four Pounds of Hops to the Barrel, the latter would make better Beer than the firſt; for the more body the liquor has, the more Hops it requires to aſſiſt its fermentations, becauſe the ſtrongeſt-bodied liquors will purge longeſt; the beſt direction, therefore, for hopping Beer, is to proportion the quantity of Hops (not to the barrel, but) to the quantity and quality of the Malt, and to the time it is deſigned to be kept: For inſtance, ſuppoſe your Beer is deſigned for a year's keeping, and that your malt is well dried, you ſhould allow ſix pounds of Hops to every quarter of Malt; but if your Malt be ſlack, or not thoroughly malted, or ſlack-dried, then more Hops are required, in proportion to the number of theſe bad qualities. If it be only got ſlack, you may allow two pounds more to every quarter of Malt; but if not thoroughly dried (which I think to be worſe than its getting ſlack afterwards) it will require nine pounds of Hops to a quarter of Malt: But for ſuch Malts as are well dried, and not got ſlack, although not thoroughly malted, no Difference need be made in the quantity of Hops; for, on account of their not being thoroughly malted, you cannot get all the Goodneſs from them; ſo that the liquor having no great body, more hops are not required.

CHAP. X.

The Reaſon why brown Beer requires as many Hops as pale Beer.

ALthough the ſtrongeſt Beer requires moſt Hops, and though pale Malt will make the ſtrongeſt Beer in proportion to its quantity, and brown Malts high dried are naturally bitter, and might keep longer without Hops than the pale; yet the brown Beer requires as many Hops as the pale, becauſe you cannot work the brown Beer ſo long in the Tun (to receive the Virtue of the Hops) as you can the other; for if you do, it muſt be drank preſently, or it will be flat and dead; for the fermenting Spirit of that ſort of Malt is taken from it by its being dried ſo high.

CHAP. XI.

Of the Opinion of ſome, that Beer is not good till the Hops are rotted in it.

THERE is an opinion which many people entertain, and which is without any reaſonable foundation, that is, that Beer can never be good, till the Hops be entirely rotted in it, (and the time they fix for this is no leſs than twelve Months) and that, by conſequence, no Beer can be good till it be a twelvemonth old: But in this they are much deceived; for Beer may have as true a flavour of the Hop after two months, as at any Time between that and the end of the year: For this entirely depends on the ſkilful management of the Brewer, to cauſe the Wort to unite well with the Hop; and no one deſerves the Character of a good Brewer, who cannot have his Beer in as good Forwardneſs for drinking in four Months, as perſons poſſeſſed with this Opinion have in twelve; for this was only an

Opinion propagated by Perſons unſkilled in the Art of Brewing; and what gave it Credit was, that from their want of ſkill in Brewing, their Beer was ſcarce ever fit to drink, till it was a Year old or older.

CHAP. XII.

Why Beer requires more Hops in Summer than in Winter.

NO Beer ſhould be worked ſo far, before it is put in the Cellar or Storehouſe, as not to purge afterwards; and as while it is purging, there is always a ſediment which is continually diſſolving, and the warm weather increaſes the fermentation of the liquor, the virtue of the Hop (which is of an oily Subſtance) will continually be working out; whereas it ſhould remain to incorporate with the Beer, and ſupport it in its fermentation, which is the Time when the Beer moſt wants the Aſſiſtance of the Hops.

CHAP. XIII.

What Regard is to be had to the kind of Cellaridge, in hopping the Beer.

FOR want of due Attention to this, Beer is often ſpoiled; for after Beer has done working on the ſtillings, it ſhould lie quiet, and not be put in Motion in the Cellar, unleſs by great Increaſe of Warmth in the Weather; but when Beer is put into a Cellar which is very warm either on Account of a Fire being near it, or of the Cellar being much expoſed to the Sun, you ought not to allow leſs than nine or ten Pounds of Hops to every Quarter of Malt, (that is five Pounds more than if the Cellar were ſo cool as you could wiſh it) and ſo in proportion, more or leſs, according to the degree in which the heat of your Cellar exceeds the Heat which you would chuſe, if it were in your Power. The reaſon of this Difference to be made between the quantity of hops, to be allowed in a hot cellar or in a cool one, is the increaſed fermentation of the Beer by the heat, on which account more hops are required (as has been ſaid above) to carry the Beer through theſe repeated fermentations.

CHAP. XIV.

That fine pale Beer is not profitable either to Brewers or to private Families.

MANY Perſons, in chuſing their Beer, attend more to the colour than to two much more valuable and important Articles, which are the Strength of the Beer and the quantity of Hops which it requires; whereas they might have their Beer almoſt as ſtrong again, and for half the charge of the fine pale Beer, and that for theſe Reaſons: The Malt from which the fine pale Beer is brewed, cannot be had under ſix-pence a buſhel more than the beſt common ſort, and yet is not ſo good; becauſe it is ſeldom above half malted, for fear of diſcolouring it; and beſides, it is ground ſo high that near a third part of it is not broke at all: and this, together with its being ſlack dried, and but few hours being employed in brewing from it, makes it impoſſible to get above half the goodneſs from it, as might be got from ſuch barley as is low ground, fully malted, and high-dried; and an extraordinary charge attends the hopping of this beer, both as to the Price and quantity of the Hops; neither can it ſo ſoon be forwarded for ſpending as the other ſort of beer, for Fear of diſcolouring it.

CHAP. XV.

How fine pale Beer ſhould be managed in the Tun.

THE beſt Way of working this ſort of Beer, is to begin ſtirring it ſooner, and repeat this oftener, the better to make the Hop incorporate with the Beer, and you muſt not let it be ſo warm during its fermentation, as you would the common Sort to be; but its higheſt pitch ſhould be ſomething under blood-warm; and when it has worked about two thirds as much as the common ſort, then is the propereſt Time to purge it; for it ought to ſtand about a year in the caſk, becauſe age is of ſervice to its Colour; for the longer it ſtands, the paler it will grow.

CHAP. XVI.

The Time of boiling the Worts.

THERE can be no fixed univerſal rule for this. It depends on the condition in which the Wort comes to the copper. If the Worts are foxed when they come there, no ſhort boiling nor long boiling will fully reſtore them to their former Strength; but boiling an hour or two will be better than a few Minutes, becauſe by ſo doing, the foul Matter (the lighteſt Part of it at leaſt) will be diſſolved into a Fluid; but no time of boiling will make Wort in this condition quite fine. As to that ſort of Wort which gets foul by having too much liquor, and by the liquor above the

Goods growing cold, the ſame management in boiling is proper, as for that mentioned above; and the ſame is alſo proper for Wort which has been let off the Goods too faſt, and, by that Means, has drawn too much of the Subſtance of the Goods, which ſhould have been left behind, to be diſſolved into a Fluid.

But when Wort is brought to the Copper, free from any of the forementioned faults, the time of boiling muſt be regulated from the Quantity of Hops, and the Time you are to allow for your ſubſequent proceedings in your Brewing, with this caution only, that it muſt boil till the Hops are got within the Wort, or elſe it will not have boiled long enough to be fine. The Wort which is got from the half-malted corn requires a long boiling to mend it a little; and this is all that can be done for it, for no length of boiling will ever make it quite fine.

CHAP. XVII.

Of the Form and Size of the Backs.

YOUR firſt Back ſhould be large enough to contain the Wort at eight inches deep; becauſe if it were made to hold it at four inches deep, there muſt be more Back room than is convenient, (as there would be five of the ſame ſize) and they would cool the Worts faſter than the Maſhes would follow; ſo that they would not only dry, and cauſe the ſediment in the joints to ſet the following Worts on purging; but they would take more room in the Brewhouſe than is neceſſary, and make the charge greater, as well as give more trouble to keep them clean. If, on the other hand, the Back were to be made deeper than eight inches, the ſediment would be longer before it ſubſided to the bottom, and prevent your letting it go, in order to get the Worts forward for cooling; beſides, a greater depth would make the ſediment riſe ſooner after it had ſubſided, by which means the Wort would get foul. At one end of the Back there ſhould be a falſe bottom for the Shute to come into, from the Cock of the Copper, with lattice work on it, to keep the Hops from running through with the Wort.

It is proper that the current of this Back ſhould be at the fartheſt corner from the Hop Back, becauſe the greateſt Part of the Sediment is generally under the Hop Back; and there ſhould alſo be two large Cocks to this Back, one at the loweſt corner, for drawing off the Back clean, when it is requiſite, for which purpoſe there ſhould be a Plug Hole at the bottom of the Back, at the loweſt end, by which the Sediment may be let off with the Wort, when you think it neceſſary; and another at ſome diſtance from the former, but not fixed quite ſo low in the Back, that the ſediment may be left behind.

The ſecond Back ſhould be as large as the firſt, but it need not be ſo deep; and it ſhould be fixed under the loweſt corner of the firſt Back: There ſhould be two Cocks in it, one for filling the third

Back from it, the other for diſcharging this ſecond Back into the Tun, when requiſite. Theſe Cocks ſhould be ſo big as that you may vent it as ſlowly as you pleaſe.

The three remaining Backs ſhould be as large, but not ſo deep, and ſhould be fixed one under another, in the ſame manner as the ſecond is under the firſt; and they ſhould each have a Bung-Hole for venting them.

The Backs being thus fixed, when you charge the ſecond Back from the firſt, fill it not above half an inch deep at the higheſt Corner; then, after letting the Wort ſtand a few minutes to ſettle, let it into the third, and ſo on to the laſt, and ſtill continue filling each Back as faſt as it gets empty; and by this Means the bottom of the Backs getting cool, and the Wort being continually in motion, the ſteam has a much better opportunity of diſcharging itſelf; and, of courſe, the ſediment will ſettle the better, and the Worts cool faſter, which is a very neceſſary article in the ſummer, to prevent the Beer from getting foxed.

CHAP. XVIII.

Of the Sediment riſing through the Worts, in the firſt Back.

IN letting off the Wort, ſome Hops will get through with the Wort, which at firſt are forced to the bottom by the ſediment, and by the heat of the Wort; but as they are very light, they will (in warm weather eſpecially) very ſoon riſe again (unleſs prevented by drawing off the Wort as ſoon as ever it is ready, but more ſlowly the nearer it comes to the bottom) and in riſing they bring the lighteſt part of the ſediment, which lies round them, up with them: and if this firſt riſing of the ſediment happen at that end of the Back which is fartheſt from the draining-place, the Wort, of courſe, ſupplies the place which the ſediment leaves; and as it paſſes off from that vacant place towards the drain, it gets under the ſediment, and every hoppy or light Sediment under which it gets, it cauſes immediately to riſe, which leaves room for Wort continually to ſucceed in its place, and to produce the ſame effect of making more ſediment riſe, as the Wort paſſes off to the Drain, ſo that the whole Back is in a few minutes thick and foul; and when once this ſediment riſes, it never ſinks again till it is cool, and if you let it remain thus three or four inches deep, it will get foxed. Your beſt way, therefore, is to let it keep running till it be drawn off to about an inch and a half, or an inch deep, (the ſhallower it is, the ſooner it will ſink) after which you may let it ſtand to ſubſide, without danger of its being foxed.

CHAP. XIX.

Of the Summer-made Malts.

THESE Sort of Malts are generally called half-malted Corn, and that for this reaſon; the Acroſpire is not worked above half way of the Grain; therefore unleſs this Grain were to be very well floored, which the hot weather will not permit, of courſe, it can be but little above half malted; which you may try by biting a grain of it from the root end, and taking notice how far it will taſte mellow; for ſo far and no farther is the grain converted into Malt. The Beer that is made from ſuch half-malted Grain will be attended with many bad qualities: In the firſt place, it will have no great body, becauſe you cannot, in the time you brew, diſſolve enough of the grain into a fluid, to give a ſtrong body to your Liquor; and that part of the Grain which is diſſolved, will never give ſo clear a fluid as that which is produced by the diſſolution of well-malted Corn: and this difference is viſible to the eye; for when the Fluid is made from half-malted grain, there will always be a kind of Cloud floating in the Maſh Tun, after the firſt or ſecond Maſh (if there be any Liquor left above the Malt) and when it comes into the firſt Back, this Cloud is likewiſe diſcoverable there, and when you ſpread the Liquor thin in the Backs for cooling, this Cloud then ſhews itſelf, with ſuch a thick, muddy Colour, as would puzzle ſome Brewers to know whether the Liquor was brewed from brown Malt or from pale; and if you convert ſuch half-malted Grain to as pale Malt as you can, or to as brown as you can without burning it, there will not be a proportionable difference in the Fluid, which will ſtill have that thick, muddy appearance; nor can all the good management in the World wholly remove this fault; for if you work it in the Guile Tun as long as it will bear, this indeed will help the colour a little; but as this Beer is naturally apt to drink flat, this method will make it drink flatter ſtill, eſpecially if it be brewed from the brown Malt. The Fluid from the pale Malt being apt to grow ſour ſooner than that from the brown, may receive aſſiſtance by being worked ſomething longer in the Tun.

CHAP. XX.

How to proceed when there is a Scarcity of Yeaſt.

IT may ſometimes happen that a Brewer has not above half the quantity of Yeaſt as is requiſite in common, eſpecially for a Guile Tun of pale Beer, which may want ſeveral ſupplies of Yeaſt, during the time of its working. In ſuch a caſe, you ſhould let down the Strong Beer as cool as you can, if it be not very cold weather, and not pitch it till it is all let down, and reſerve a full quantity of Yeaſt for your Small Beer, and let ſome of it down, as ſoon as you can, to the Sweepings of all your Backs but the firſt; and with that Small Beer Wort which is hot, make it nearly blood-warm, then put your full quantity of Yeaſt to it, and let all the reſt of the Wort follow as faſt as you can, and as warm as the weather at the time will admit; (taking care however that it be not ſo warm as to put it on the fret) in order to cleanſe it as faſt as may be done without damaging it. By thus taking the ſweepings of the Backs to pitch the Beer to, you have ſome of the lighter matter with it, and the liquor has received air. Now this lighter matter ſooneſt becomes Yeaſt; and by putting ſome warm Wort to it, and pitching the Beer to a ſmall quantity of it, you will ſooner ſet it on purging, and thereby make the Guile Tun work ſooner than it would otherwiſe do: after this, as ſoon as it has got to a tolerable head, you ſhould give it a ſhake or two, to forward it for Yeaſt. By this means you may get Yeaſt from the Guile of Small Beer, (unleſs the weather be very warm) to ſupply the ſtrong before it comes to be upon the fret.

CHAP. XXI.

Of different Sorts of Yeaſt, and how to proceed with them.

THERE are five Sorts of Yeaſt common among Brewers, which are theſe: 1. Strong Beer Yeaſt: 2. Small

Beer Yeaſt: 3. Light Yeaſt: 4. Solid Yeaſt; and 5. Stale Yeaſt.

The Strong Beer Yeaſt is to be preferred to the Small, but not the pale Beer Yeaſt (becauſe it is too much ſpent in long working) for the following reaſons. In the firſt place, it is the bittereſt, and, ſecondly, it is the ſtrongeſt, conſequently it is the fitter for uſe, to ſave what may be ſaved of it; for, being the ſtrongeſt, a leſs quantity of it will do, and, from its bitterneſs, a leſs quantity of Hops will be neceſſary. The only exception to the preference of Strong Beer Yeaſt to Small Beer Yeaſt, is that the latter is not near ſo high coloured as the Strong Beer Yeaſt is, and therefore better ſuits thoſe who are very nice in the colour of their pale Beer.

As to the ſolid or good Yeaſt from brown Beer, this cannot be expected to become as ſolid in warm weather as in cold; for inſtead of becoming ſolid, it will adhere to the Beer, and be like an egg beat up in warm Beer. This ſort of Yeaſt ſhould be tried before you uſe it, and the beſt method of trying it is this. Take it out of the ſtilling, when it is in the condition abovementioned, and lay it very thin, where you may draw the Beer from it, and in the cooleſt place you have; and when the Beer will run, draw it from the Yeaſt, and by meaſuring it in and out, you will better be able to judge what quantity to uſe; and when the weather is hot, and the Yeaſt likely to be in the condition before-mentioned, the beſt way is to keep it as thin as you can, by often drawing the Beer from it.

As to Yeaſt that is light, this lightneſs is a fault which time will mend; but where time cannot be allowed, you ſhould endeavour, as nearly as your Eye will ſerve you, in five or ſix ſorts of this Yeaſt, to diſtinguiſh one ſort from the other, and then compute how many gallons of any one of theſe ſorts of Yeaſt will make one of ſolid Yeaſt; and ſuppoſing fifteen gallons of the light Yeaſt to be put into the ſtilling; and that when it is ſettled, and the Beer drawn from it, it produces three gallons of ſolid Yeaſt. By this proportion you may try different ſorts of light Yeaſt.

The ſtale Yeaſt may be known partly by the eye, and partly by the palate; and in this kind of Yeaſt (which may be diſtinguiſhed into five or ſix different ſorts) you ſhould proceed as follows: Take an equal quantity of Tun Beer in equal veſſels, and ſet them together, but take care not to over yeaſt them, but rather the contrary; and the longer it is before they work, the better judgment you will be able to form of them: and ſuppoſing there be half a pint of good Yeaſt, and a pint of the third ſort of ſtale Yeaſt, in ten or twelve hours theſe Tuns will probably be equal in their forwardneſs for working, (ſuch is the proportion between this ſort of ſtale Yeaſt and the good) and by frequent trials of this kind, with all the different ſorts of ſtale Yeaſt compared with the good Yeaſt, you will find what is the proper proportion for each ſort. As to curdy Yeaſt, this is worſe than the ſtale Yeaſt, becauſe in this caſe the Beer muſt have been foxed, before it came into the Tun, or by being heated in the Tun before it was worked to its proper pitch, and according as the wort was more or leſs foxed, ſo will the Yeaſt be more or leſs curdy; and what makes it the moſt unfit for uſe, is that it could not have become curdy, if the fluid it proceeded from had not been of an acid nature, ſome of which acidity the Yeaſt muſt of courſe retain. Now nothing can be more abſurd than to employ an acid to aſſiſt fermentation, the nature of acids being, on the contrary, to check all fermentation.

CHAP. XXII.

Of that Sort of Worts which will not be fine in the firſt Back.

THIS accident of not being fine in the firſt Back, will happen to Worts from ſeveral circumſtances of want of care or ſkill in the management of them; as, for inſtance, by the liquor being taken too cool, by which means the Wort will be liable to be foxed, or by over liquoring the goods, which gives the lighter part of the ſediment more liberty to float on the top of the Maſh, and ſo makes it ſubject to grow cool, and, conſequently, to get foxed, which will likewiſe happen by the Wort's lying too long in the under Back; this floating ſediment will alſo be found, if the Worts are not made to boil, and turn'd off boiling hot. In theſe caſes, the beſt way to manage the Wort, is to let it ſtand ſome time, before you let it out of the firſt Back, to let as much of the ſediment ſubſide as will; then ſpread the other Backs as thin as you poſſibly can, and ſweep every Back after it is empty. The thinner any fluid is ſpread, the leſs reſiſtance it makes for the ſediment to paſs thro', and the leſs depth it affords to keep it floating; and by ſweeping the Backs every time, you prevent the ſediment from riſing again, which it will be likely to do, becauſe, by its having been both wet and dry, ſome have been diſſolved, and made light enough to float.

CHAP. XXIII.

Of letting down the Wort.

IN all weathers, from cool to temperate weather, you may let the Wort run out of the firſt Back, no faſter than will juſt charge all the Backs at firſt, and after they are charged, no faſter than they will run down; for in cool weather, there is no danger of any ſediment ariſing; and as the Backs lie one below another, by letting the Wort run thro' them all, to charge the lowermoſt, this lowermoſt will be cool in a ſmall time, and after it has ſtood a little time to ſettle, it is fit to let go, and as ſoon as this is let go, the others may be let go into it, as they follow in order; thus all the Wort will be in motion together the whole time till it comes into the Guile Tun, by which means there will never be any danger of the Beer becoming foxed.

But in warm, and ſtill more in very hot weather, after the firſt Back of Wort has ſtood about a quarter of an hour, for the ſediment to ſubſide, it will be very neceſſary, if you are at all apprehenſive of any foulneſs ariſing, to have a plug-hole or two extraordinary, in different places, not too near the bottom of the Back; and when you find you can draw the Wort clear, to about an inch or an inch and an half deep, you may ſtop all your plug-holes but one, and leave that gently running; and as ſoon as it has ſtood a little time in the ſecond Back, to let what little ſediment there may be, ſubſide, you may proceed to charge the other Backs; and as ſoon as ever the undermoſt Back is fit to let go, all the reſt will be in motion at once: and the warmer the weather is, the thinner you ſhould charge the Backs; for by this means you get all in motion ſooner, and cool them—But if the weather ſhould be extraordinary hot, and you have a great deal of Wort behind, (ſuppoſe half) and that by the other going off ſlow before it, what remains ſhould have declined in heat to blood-warm, the beſt way to prevent its getting damage, is to ſpread it of an equal thickneſs in all the Backs, and let it lie till they are all fit to let down, unleſs you are afraid of its being foxed; to prevent which it is worth while to be at the trouble of laving it back again in order to continue it in motion, or with a broom to keep it moving in the Backs.

CHAP. XXIV.

Why a Guile of all Small Beer is the hardeſt of any Beer to be brought to work in the Guile Tun.

THE firſt thing to be conſidered in working this difficult guile of Beer, is the Malt, and the moſt thoroughly malted corn is the beſt for this guile; and the ſmalleſt bodied barleys are the beſt for being thoroughly malted, becauſe they can be with the moſt eaſe entirely converted into Malt, without receiving any hurt; but if you ſhould have for a brewing (for all ſmall Beer) barley that is not above three parts malted, (and the great bodied barleys ſeldom are more malted) you muſt not proceed in this caſe as you would if your Guile were Strong Beer; for in that caſe, that part which is hardeſt to diſſolve, which you get from the goods in the laſt Maſh, being to go with the two former Worts, their body will ſupport this heavier part in its fermentation. But in brewing all ſmall, the part moſt difficult to be diſſolved, being to go to two much weaker worts, they will not ſupport this heavier, and hardly diſſolved part; and inſtead of riſing to the top of the guile, in the way of fermentation, it will ſink to the bottom: wherefore, for a guile of all Small Beer, after you have taken the liquor for the two firſt Worts, you ſhould not take it ſo ſharp, nor let it ſtand ſo long, for fear of drawing too much of that heavy and difficultly diſſolving ſubſtance with it, and ſo prevent its working as it ought to do in the Tun.

CHAP. XXV.

How Worts ſhould be let down in temperate Weather.

WHEN the thermometer indicates temperate weather, you ſhould get ſome running water, and ſet it in a temperate place for a day or two, and obſerve the temper of it as near as you can by the feel, and let your Wort down about one degree in twenty warmer than this water; and you will be able to do this with more accuracy, if to twenty pints of this water; you put one pint of boiling water, and mix them well, by feeling them together, you will the better diſtinguiſh the different degrees of heat.

CHAP. XXVI.

How Wort ſhould be let down in very cold Weather.

THE higheſt pitch of warmth for letting down the Worts in very cold weather, ſhould be blood-warm; for if they were to be any warmer, tho' it muſt be allowed they would ſoon grow cooler by the weather, yet, by lying thicker in the Tun than in the Backs, they would be foxed firſt; and if you were to yeaſt them when let down warmer than blood-warm, the heat would deſtroy the effects of the Yeaſt; and as this is the degree of heat at which they ſhould be let down in very cold weather, ſo when the thermometer ſhews warm weather, this is the pitch between the extremes of heat and cold, in which you cannot let them down too cold.

CHAP. XXVII.

Why the Pipes from the Backs to the Guile Tun ſhould often be turned going.

AS trifling as this article may ſeem, many ſpoil their Worts by not attending to it.

For want of the pipes being turned, the Wort and its ſediment in the Tun will cool faſter than that in the Backs, and as it cools, will naturally begin working; ſo that if it be not let out before it gathers to a working head, will continue gathering on the top of the Back over the pipe, and being often driven by wind from its place to the ſides, will gather all round the Back, and remain in it when the Wort is let down; and then drying on the wood will ſet the next piece of wort on working as ſoon as it is a little cool; and thus, for want of a little care at firſt, it will gather every time till the Backs become quite foul.

CHAP. XXVIII.

Precautions to be taken in Regard to the Quantity of Yeaſt to be uſed in pitching a Tun.

BEFORE you proceed to pitch your tun, you ſhould conſider the ſituation of the tun, the body of the Wort, at what degree of heat it was let down, to what quantity it is to be pitched, and whether it be at all foxed. If the tun be in a warmer ſituation than the temperature of the weather, leſs Yeaſt will do than if the ſituation of the tun be of the ſame temperature for warmth as the weather; but if the tun be in a colder ſituation, more Yeaſt is required. As to the body of the wort, the ſtronger the body is, the leſs Yeaſt is neceſſary for pitching it, and more is requiſite, the weaker the body is; as alſo leſs Yeaſt is required, the warmer the wort is let down, and *vice verſâ*; and as to the quantity to which you pitch it, more Yeaſt is alſo to be uſed to a large than a ſmall quantity, as alſo to foxed wort than to good wort, more or leſs as the wort is foxed to a greater or leſs degree.

CHAP. XXIX.

Why moſt can be made of the Malt in warm Weather.

IN warm weather the liquor will keep up the longeſt in that right degree of heat, which it ſhould have when put to the Malt, and conſequently will longer continue to penetrate the ſubſtance of the Malt, in order to the diſſolving it to a fluid; more therefore of the ſolid ſubſtance of the Malt, which makes the ſtrength of the liquor, will be diſſolved in warm weather than in cold; becauſe in proportion as the cold makes the heat of the liquor decline, it abates its penetrating and diſſolving power.

CHAP. XXX.

How a Tun ſhould be pitched in very warm Weather.

IN ſuch weather the wort cannot be let down too cool, ſo as that you only prevent its being foxed in the Backs, in order that it may work gradually in the tun, you muſt not pitch it to a ſmall quantity of wort, as at other times, nor employ ſo much Yeaſt as uſual; and before you pitch it, you ſhould have half the guile of wort down, (and the warmer the weather, the more wort you ſhould let down) then put about half as much Yeaſt as you would uſe in temperate weather. The reaſon for ſuch a proceeding is this: If you were to pitch the tun to a ſmall quantity of wort (even though you uſed but a ſmall quantity of Yeaſt) the heat of the weather would make it appear as forward in working in four or five hours as it would be in fifteen in temperate weather; and when once it is in ſuch a fury of working, it would work itſelf to ſuch a Heat as moving would not abate; neither will ſuch a ſupply of Yeaſt as it ſhould have to work it to its proper pitch, be able to perform its office, becauſe the heat of the tun will deſtroy it, ſo that ſuch a guile of beer will loſe is ſtrength, and be foxed; but by pitching it to half the guile or more, in warm weather, and with half the Yeaſt as in temperate weather, the ſmall quantity of Yeaſt and the large quantity of worts, both oppoſe its ſpeedy fermentation; and in very warm weather it cannot ferment too ſlowly, becauſe the hot weather itſelf has ſo great a tendency to haſten its fermentation. By this method you will ſee the appearances of its firſt working at the ſame hours as in temperate weather, without moving it; though indeed you ſhould not wait to ſee it come to a head, before you move it, in very warm weather; but as ſoon as ever you perceive it working through the frothy head (if it be not all down) you ſhould begin moving, and keep moving it every hour or two at leaſt. By this means, though you employed but a ſmall quantity of Yeaſt, yet that, by being often cooled, will take off the violence of the fermentation, which otherwiſe would force it into a heat very prejudicial in hot weather: and when the fury of its working is abated by this method, then by ſupplying it with Yeaſt in ſmall quantities, and oftener than uſual, you may always keep the fermentation under, by moving the liquor as you ſee occaſion; and if it ſhould at any time be proper to quicken the fermentation, you need only ſtir it leſs often, and it will ſoon get forward; and as the weather abates in heat, you ſhould take care to pitch your tun with leſs wort and more yeaſt, till the thermometer be below temperate weather; and as it grows cooler, and declines more and more towards exceſſive cold, you ſhould, in pitching, leſſen the quantity of wort, and increaſe that of Yeaſt, and let the wort down warmer.

Some people are afraid that a guile may get damage, if it be not yeaſted as ſoon as there is any to pitch to; but there is no danger of this, not even in the hotteſt weather, if the worts are let down cool enough, and pitched to a ſmall quantity of Yeaſt: ſo that there would be no harm done if they were all let down before you yeaſt them.

CHAP. XXXI.

How common brown Ale is to be yeaſted.

I Underſtand here ſuch ale as is intended to be drank new and mixed with ſtale beer; as this therefore is deſigned to be drank immediately, and will not admit of being worked long in the tun, you may put in your full quantity of Yeaſt at firſt; and when you have got about a ſixth part of the firſt wort down, or about a third part of the whole, you may proceed to pitch your tun, allowing of ſolid Yeaſt in the proportion of a gallon to every ſix barrels of wort in the guile.

CHAP. XXXII.

How to furniſh yourſelf with an extraordinary Liquor.

THIS ſecret conſiſts in having your malting office adjoining to your brew-houſe, and having it ſo contrived in the building, as to reſerve all the Liquor in which your Barley was ſteeped, in ſome convenient place from whence it may be conveyed to your copper. This I firſt found out by ſtudying the nature of liquors, which led me to ſeek out ſome method of trying them; and I have found out an inſtrument which will diſtinguiſh them ſo nearly as to the difference of one part in thirty-ſix of ſtrength; and as it is certain that the water in which barley has been ſteeped for ſixty hours, muſt have gained ſome virtue from it: ſo, upon trial, I found an addition of body in it, equivalent to five, ſix, or eight ſhillings a barrel, compared with the liquor before the Barley was ſteeped in it. The reaſons of this difference from five ſhillings to eight in a barrel, are the difference of the corn, of the time of its being ſteeped, and of the time of year; for the more ſtrength is gained by the liquor from the corn, in proportion as the corn is mellower, and as the weather is warmer: in proportion therefore to the quantity and ſtrength of the liquor you can ſave from this ſteeping, for your brewing, will be your clear gain by this ſaving; ſuppoſe, for inſtance, you can ſave ten barrels for one brewing, at the rate of ſix ſhillings *per* barrel, the clear gain will be three pounds, if you can keep it a ſecret, ſo that other brewers may not manage their liquor to the ſame advantage; neither is there any danger of its giving the liquor an ill taſte, as ſome perſons might fear, but as this liquor is more glutinous than common liquor, it will be more liable to make a pudding, if it were all uſed in the firſt maſh; to prevent this, you ſhould contrive to uſe it by degrees, after the firſt maſh, (and particularly in that maſh in which you know it has not long to ſtay upon the goods) and if neceſſity obliges you to uſe a quantity of it, at your firſt, ſecond, or third maſh, as the third is that in which the liquor ſtays a conſiderable time upon the goods, you ſhould not take it quite ſo ſharp as uſual. The ſecond and fourth are (I think) the propereſt maſhes for uſing the liquor thus reſerved, after ſteeping of the Barley.

CHAP. XXXIII.

How to proportion the Quantity of Yeaſt to the different Hardneſs or Softneſs of the Water uſed in Brewing,

IF in warm weather you ſhould over-yeaſt a guile, made from ſuch water as purges moſt freely, you cannot command it in its working, by the following wort, as you could in cold weather; for by the guile (eſpecially of Strong Beer) being over-yeaſted, it will, by working too faſt, raiſe itſelf to a heat and fret, and cannot ſo well be reduced to a proper moderation of working as in cold weather. As to Small Beer, though it be not ſo ſubject to fret as the Strong, yet in yeaſting a guile of Small Beer, it is proper to conſider whether the water which was uſed in brewing it, were hard or ſoft, and a greater difference in the Yeaſt is required, if hard water has been uſed in the brewing, for yeaſting a guile of Small than for a guile of Strong Beer, as well becauſe of the greater quantity of the water, as its weak body: to find, therefore, a medium between the ſoft water and the hard water, when converted into ſmall Beer, put an equal quantity of each ſort into two veſſels, and an equal quantity of wort to each; then by making trials with Yeaſt to both, till you have found what quantity of Yeaſt, will make each of theſe mixtures come to an equal height of working, in about ſixteen or twenty hours, you will be able from thence to proportion the quantities for every difference of waters, between the extremes of hardneſs and ſoftneſs; and the general proportion for thoſe extremes, in water converted into ſmall Beer, is about one pint and a quarter of Yeaſt for the hard water, and one pint for the ſoft.

CHAP. XXXIV.

Of a Guile of pale Beer being forced out of the Tun, before it has worked to its proper Pitch.

AS in frequent brewings it may very often happen, that a guile of Beer may be forced out of the tun by a following brewing, before it has had its due time of working; either on account of very cold weather, or the want of tun-room, and a neceſſity of immediate brewing: in ſuch circumſtances, this guile of pale Beer ſhould be vended for Ale; but if you do not approve of this, you ſhould hop the next guile of pale Beer at leaſt a fourth part more than uſual; then you may put one barrel to four, or two to ſix, of the bad guile into the tun, and work the two together till it has worked its due time, before you purge it.

The reaſon why the guile which follows the bad guile ſhould be more hopped is this; becauſe the bad guile was forced out of the tun before the Hop could incorporate with the Beer; and if inſtead of vending the bad guile for Ale, you keep it, without managing it as above directed, you muſt expect that if it be drank ſoon, it will drink both new and ſweet; and if it be kept any time, by every change it undergoes, by fermenting in the caſk, it will become ſharp, and then it will taſte both ſweet and ſour, but more and more ſour at every fermentation; and as the ſourneſs increaſes, its body will decreaſe. There is alſo another method of proceeding with ſuch a guile of Beer, which is, to cleanſe it in the largeſt caſks you have, and fill them no fuller than to allow room for the working head to be contained within the caſk, and let every caſk have an equal ſhare of the head of the tun, as you take it out, and every hour or two ſhake the caſks well, and ſtill ſupply Yeaſt as it is wanting, (which

you

you will know by the taſte and the falling of the head) till you think it has worked enough, and then you may continue filling your caſks till the light head has worked out; but in this way of proceeding, you muſt expect the ſolid Yeaſt to remain in the caſk, unleſs you rack the Beer from it; and the Beer will be liable to be flat, but if you follow neither of theſe methods, you muſt expect it to have a bad taſte, unleſs you allow it a ſufficient quantity of Hops to ſupport it under the fermentations it muſt go through in the caſk before it be fit to drink.

CHAP. XXXV.

Of pale Beer in the Caſk being firſt fine, and afterwards foul.

SUCH Beer as has had its proper working, (except in very warm weather) will in a few days after it is fixed in the place where it is to ſtand, be fine, and ſo continue for ſome time, unleſs it be on the fret, or moved when near fermentation; for all Beer has ſome undiſſolved ſolid remaining in it, which floating in the Beer makes it foul; but while the Beer is fermenting in the tun, the heat of that, and the fermentation, cauſe all the lighteſt part of the ſolid to be diſſolved, and even that light part which ſurrounds the heavier and groſſer parts, and which, while it continues undiſſolved, keeps thoſe heavier parts, which it ſo ſurrounds, from ſinking; as, therefore, the lighteſt part either diſſolves or works out with the Yeaſt, and the heavieſt, forſaken by the lighteſt, ſinks to the bottom, the Beer continues fine for a conſiderable time; but if it be moved, in two or three months ſuppoſe, and doth not purge, it will not be ſo fine; becauſe that ſolid part which is diſſolved hath not fermented; but if it doth ferment after this moving, the Beer will be finer than before; but the reaſon why this Beer will not be ſo fine at about a year's end as before, is this: the ſolid matter, which ſubſided in the caſk, requires length of time to diſſolve into a fluid; and in the progreſs of its ſolution, as the fluid more and more penetrates and divides its parts, ſome of it is continually growing lighter, and becoming of an equal weight to the fluid, by which means it neither ſinks, nor floats on the top, but remains ſuſpended in the fluid; ſo that till all this matter be diſſolved into a fluid, you cannot expect the Beer to be fine; that is to ſay, not till the Beer is ſtale. As to that Beer which has been worked to its proper pitch, and not heated in the tun, while it was working, it will be longer before it is fine in the caſk, for want of a moderate warmth to diſſolve the ſolid into a fluid; wherefore, according to the degree of fineneſs, which it has in about a month after it is brewed, one may judge whether it had heat in the working, or not.

CHAP. XXXVI.

Of the Neceſſity of well hopping the Beer, in order to preſerve its Strength.

THIS article of well hopping the Beer is of as great importance as any in the whole art of Brewing; for if you have a ſtrong body of Beer, but have not Hops in proportion to it, (as, ſuppoſe you have but half the quantity of Hops you ſhould have) the Beer will not be ſo valuable as if it had but half the body; for then that quantity of Hops would have been ſufficient to ſupport it in its fermentations; whereas, if to Beer of a ſtrong body there ſhould be put but half the uſual quantity of Hops, before ever it could ſtand long enough to be fit for drinking, it would grow ſour; not that the Hops themſelves have a body in them capable of giving much additional ſtrength to the Beer; but on account of the ſupport they give it under its fermentations; and if you let your Beer down from the Backs-foul, (in order to have it the ſtronger) a large quantity of Hops is neceſſary, becauſe the fouler any Beer is, the oftener it will purge, both in the tun, on the ſtillings, and in the cellar; and the oftener it purges, the more Hops are neceſſary to preſerve it from growing ſour, which, for want of them it would do every time it purged, as palating it would convince you.

CHAP. XXXVII.

How Ale ſhould be managed in the Guile Tun.

IN the management of Ale in the guile tun, you muſt be entirely governed by your palate and the time in which you are to draw it. If you would have it drink ſweet and luſcious, and intend it to be drawn in a week's time, you may uſe the fewer Hops; and as ſoon as it appears with a light head, working under the firſt curdly head, you may begin to move it, ſtirring it once every two or three hours, for three or four times (in order to make the Hop incorporate with it) after which you may purge it; but if your cuſtomers in general chuſe it of a more beeriſh taſte, then you ſhould not purge it ſo ſoon, but move the tun at the time beforementioned, and give it one, two, or three moves more than in the former caſe, allowing the ſame diſtance of time between every move, as was ſaid before, and let it work longer in the tun; for the longer it works in the tun, the more of a beeriſh taſte it will get.

Sometimes, at its firſt appearing to work, it may happen to appear with that light head which is your ſignal to move it, without any curdly head; this is owing either to its having been let down too warm, or having been overyeaſted: but whichever of theſe be the cauſe, move it directly; but in this caſe, you need not move it ſo many times, becauſe being in a greater hurry of working it will get a beeriſh taſte much ſooner: but if it be deſigned to drink ſoft and ſweet, it cannot work too gradually;

dually; ſo that care ſhould be taken that it may work cool, and no more Yeaſt ſhould be uſed than is neceſſary to make it appear with a curdly head, ſixteen hours after its being pitched; for where there is not too great a quantity of Yeaſt, the head, in which lies the ſtrength of the Hop, is more eaſily brought to incorporate with the Ale, without working it to a beeriſh taſte.

In warm weather, in order that the guile may work ſo as to gather a head in the proper time, it ſhould not be pitched till it be all down; and if it were to lie for half a day, or a whole day, before you pitch it, it would get no damage. If it has been let down cool, and doth not take heating before it heats itſelf, it will naturally begin working, which will give yon notice timely enough to prevent its getting damaged. In ſummer, the Ale in the guile ſhould be worked longer.

C H A P. XXXVIII.

Of the ill Effects of letting Beer down very cold, in cold weather.

WHEN Beer is let down cold in cold weather, you will not only not be able to keep on brewing, but the Beer will not be brought to work ſo kindly as it ſhould do; for if you yeaſt the guile with only the uſual quantity of Yeaſt, the Beer will not come to work in three or four days, and then if it be pale Beer, it will, perhaps, work ſo ſlow that it will not be fit to be purged in a week or a fortnight (more or leſs, according to the degree of the coldneſs of the weather) and then will be chilly and not of a proper warmth; and if you ſhould endeavour to forward its working, by over yeaſting it, it would not even then come to its proper warmth, but would carry a high bladdery head; and if you ſhould work it ſo long as to cauſe this head to incorporate with the beer as it ought to do, you would work all the ſpirit from it, and leave it flat and dead; and if you ſhould purge it before the head begins to incorporate with the Beer, you muſt expect to loſe good part of the virtue of the Hop, which would be the means of making the Beer turn ſour.

CHAP. XXXIX.

Of the Method of ſtoaking the Fire.

AS fewel is an expenſive article, it is very proper to give ſome cautions, which may be the means of preventing much needleſs waſte of fewel, as well as great loſs from ſpoiling the liquor, if ſome of it ſhould wait too long in the Back for the reſt, for want of the copper getting forward faſt enough, and the copper getting forward apace depends on the preſſure of the air. Moſt people chuſe to have the bars ſo cloſe as to let nothing through but ſmall aſhes; but this is an evident miſtake, for the bars ſoon clog up, and hinder the fire from receiving a ſufficient ſupply of air, and puts a check upon the aſcending draught of air; and as the *Vacuum* which the fire makes under the copper will be ſupplied by freſh air, (if any can get acceſs to it) if the air be hindered from riſing through the bars, it will deſcend along the flew, and check the action of the fire on the bottom of the copper; the bars ſhould therefore be made ſo wide as not to let the fire paſs through, and yet always to keep clear; and the copper hole ſhould not be over filled. In two or three minutes after coals are thrown on, the fire ſhould be ſtirred (except the coals are very ſmall and very dry) in ſuch a manner as to make them lie in furrows like new ploughed land; for after the coals have been on two or three minutes, the fury of their blaze is over, and they damp the aſcending heat; but if they be ſtirred up as above directed, ſo as to lie in furrows, a draught is made for the air through the open part of the furrows,

rows, and by lying thus it burns through every part; and as no fire can burn without air, ſo likewiſe it is neceſſary the principal acceſs of the air to the fire in this caſe, ſhould be from below (to drive the heat moſt forcibly up) towards the bottom of the copper.

CHAP. XL.

In what Sort of Caſks the Beer ſhould be put, in order to its becoming fine ſoon.

TO have your Beer fine ſoon, you ſhould put it into caſks in which it will lie ſhalloweſt; and if you are obliged to put it into large caſks, you ſhould lay them ſo as that the Beer may lie as ſhallow as poſſible in them; and the reaſon for this manner of proceeding is, that the deeper any fluid is, the more it ſupports and keeps floating any parts of the ſolid yet undiſſolved; and, on the contrary, the ſhallower any fluid is, the ſooner the undiſſolved part of the ſolid will ſettle to the bottom, and leave the fluid clear.

CHAP. XLI.

How to make the moſt of a Brewing.

FOR making the moſt of a Brewing, it would be proper to have ſome inſtrument for preſſing the goods, i. e. the Malts, after the laſt maſh hath done running; for what you will get from them by this method, will have a greater body than the liquor had which ran from them in the laſt maſh; for every thin fluid runs more free than one that is thick, and has a leſs body (diſtilled liquors excepted) and as after every Brewing, you will find ſome part of the ſubſtance of the Malt not far enough diſſolved to run off from the goods; therefore, to make the moſt of the goods, you muſt preſs them, and altho' the wort which is got from them be thick, it is the ſtronger on that account, and may be brought to be fine by proper management in the copper and Backs. The great objection to this proceeding is, that as it is impoſſible this ſhould be done in a common Brewhouſe, without its being known, ſo every perſon who taſted the liquor thus obtained, would (from the common prejudice againſt this method) ſay it taſted of the grains, whereas, in truth, the bad taſte, when there is any, is owing to the liquor having been foxed, which is entirely the effect of bad management, and not the nature of the liquor itſelf.

C H A P. XLII.

Of the ill Effect of over-liquoring the Goods.

THE miſtake of over-liquoring the goods is attended with two bad conſequences (eſpecially if this miſtake be committed after the ſecond or third maſh) Firſt, in this caſe, that liquor which floats above the goods is more ſubject to grow cool; and if it ſhould ſtand ſo long as that its heat ſhould decline to be little more than blood-warm, the liquor will be foxed: Secondly, by its getting cool, it will draw all the light undiſſolved matter to incorporate with it, and ſo to make all the wort foul; and as the liquor above the goods declines in heat, it will penetrate the goods leſs forcibly, ſo that the top of the maſh will not be near ſo much diſſolved as the bottom and the middle are, by which means there is not only great danger of ſpoiling what wort you make, but a great part of the ſubſtance of the Malt will go with the grains.

CHAP. XLIII.

The Reaſon why ſome Beer will have no Yeaſt produced from it, when it is purged.

ALL Beer has ſome Yeaſt in it. The cauſe why Yeaſt is ſometimes not produced from it after its being purged, is this: there always remains ſome part of the Malt undiſſolved, which cannot be prevented from going off with the fluid: and this undiſſolved portion of the Malt is equal in weight to the fluid; ſo that it neither ſwims above the ſurface, as it would do if it were lighter, nor ſinks to the bottom as a heavier body would, but is ſuſpended, and floats about in the fluid, unleſs a fermentation be brought on, which will help to diſſolve great part of it; and then what remains undiſſolved will ſeparate two ways, the lighter will float, and the heavier will ſubſide. Theſe two parts being, in effect, the light and heavy Yeaſt, if the Beer wants ſuch a degree of fermentation as is neceſſary to produce this ſeparation of the undiſſolved ſubſtance of the Malt into two bodies, it is plain no Yeaſt can be got from ſuch Beer.

This defect of fermentation may proceed from various kinds of bad management; as for inſtance, letting the beer be foxed, or ſetting it on work too cold, and purging it quite young, or ſetting it on work too warm, and foxing

ing it that way, or taking the ſecond or fourth liquor too ſharp, or letting it lie too long when it is ready to go on the goods, (eſpecially if it be for all ſmall beer) or letting the wort off from the goods too faſt; in theſe laſt inſtances in particular, by taking the liquor too hot, you draw off too much of the heavier part of the malt before it be thoroughly diſſolved, eſpecially if the wort be likewiſe let off too faſt, and this ſort of wort is diſcoverable by its appearance both in the backs and in the tuns; for in the backs it will be foul and have no head at all, and when it comes into the guile tun, inſtead of carrying a fine head, it will have a large bladdery one, which will ſoon break to none at all, for the undiſſolved ſubſtance is too heavy to riſe in the all ſmall beer, becauſe this liquor wants body to ſupport it, for the ſtronger the liquor is the better it will ſupport the undiſſolved ſubſtance; if therefore you have the misfortune to have a guile of beer which will not work kindly in the uſual time, you muſt expect it to be very foul, unleſs you let it down very cool and have tun-room enough, to let it lie about ten or twelve inches thick for three or four days, in order that the heavy ſubſtance may diſſolve itſelf to a fluid, then put them together and ſet them on working, and you will find this method will make them work kindly both in the tun and in the cask, and become fine ſoon and diſcharge their yeaſt well. The yeaſt is only the ſubſtance of the malt, and the lower the malt is ground the more yeaſt will be produced from it, and however careful you may be in ſetting your tap for ſpending, it is impoſſible for you to hinder ſome part of the undiſſolved ſubſtance of the malt from going along with the fluid; and as there are ſeveral ſorts of this matter and all of them called yeaſt, ſo there are, as has been ſaid in a former chapter, various kinds of yeaſt, which however all belong to one of the three following claſſes.

Firſt, there is a ſort which is ſpecifically lighter than the fluid in which it is, and will conſequently float upon the ſurface.

Secondly, another ſort is ſpecifically heavier than the fluid and of courſe will ſink to the bottom.

Thirdly, ſome of this undiſſolved matter is equal in weight to the fluid, and therefore will float ſuſpended in the fluid.

Theſe kinds of undiſſolved matter, otherwiſe called yeaſt, are not diſtinguiſhable till the beer has worked its proper time; for before the beer works all the undiſſolved matter is ſpecifically equal in weight to the fluid, in which therefore it remains ſuſpended, but after lying ſome time in the tun to work, the different parts begin to ſeparate, and if there be a conſiderable depth of fluid the lighter matter for ſome time ſurrounds the heavier and ſupports it along with itſelf in the fluid, nor will the heavier matter ſubſide till the ſurrounding light matter be diſſolved, ſo that till the beer has worked ſome time, there can be no heavy yeaſt, and as ſome alſo of the heavy matter diſſolves during the time of its working, there ſtill remains ſome part of equal ſpecific weight with the fluid, which therefore continues to float about in it, neither ſubſiding nor riſing to the top; and this will be the caſe till the beer has ceaſed fermenting, wherefore till that time you cannot expect to get from it all the yeaſt which it is capable of producing.

To prevent the heavy yeaſt from going into the cask, (which cannot there aſcend from the beer as it ſhould, and as the light yeaſt can) you ſhould avoid ſtirring the beer in the guile tun while you are purging it, when you come near the bottom of the tun.

C H A P. XLIV.

Of the Methods of preſerving Yeaſt.

PErhaps it may be uſeful for the better preſerving your yeaſt, to preſs the back lees to thin cakes, and then dry them juſt enough to preſerve them till you have occaſion for them: but if the lees be managed in this manner, perhaps the following method might be of ſervice, that is, to mix either the yeaſt or the lees with ſome waſhed drift ſand or bran or malt duſt, by which you may make ſmall cakes of them, which will keep till you want to uſe the yeaſt: or elſe take the moſt ſolid yeaſt or back lees, and put ſome hay or ſtraw to them, and, after mixing them well together, make them up in bands and hang them in ſome place neither too damp nor too airy, and perhaps the yeaſt or back lees when once dry would keep if they were barrelled up cloſe and a layer of very dry drift ſand put between every cake; and when you want to uſe any of the cakes, you ſhould powder, if they will bear it, or elſe ſteep them in ſome of the ſtrongeſt wort, and if they will bear powder put it into the ſtrong wort and ſtir them well together till they are fit to be drawn from the heavy matter they were made up with, from which they ſhould be ſeparated by ſtraining, leſt any of the heavy ſhould go into the guile tun with them, and ſpoil the yeaſt and beer in it.

CHAP. XLV.

How to draw off the firſt Back fine and cool, without leaving the Virtue of the Hop with the Lees.

IT is very neceſſary in warm weather to draw off the worts as fine as poſſible, and likewiſe to get the virtue of the hop with it, for the beer in ſuch weather cannot well be too bitter. In order to attain this end you ſhould provide a large hollow plug, to be fixed at the bottom of the firſt back, with holes in the ſides of it quite through to the hollow part; theſe holes are to be ſtop'd with corks, and when the wort has ſtood its time and you would let it go, pull out the uppermoſt cork; for thus by taking off the top of the wort, firſt, you not only take the cooleſt part, but you preſerve the hop with it likewiſe; for that being an oily matter floats on the top of the wort, and, by continually drawing off the top part of the wort, you take off this oily matter, in which is contained the virtue of the hop together with it. As to the ſize of the plug, you muſt be directed by the time you think it will be before the ſettlement riſes, and for the number of plugs it is better to have one than two, becauſe two would obſtruct each other in getting the virtue of the hop; and if you find the ſcum or oily matter (in which I think is the virtue of the hop) to clog round the plug, you muſt endeavour to help it through; if you have not a plug of this kind obſerve when the top of the wort comes to be level with the hole or cock which lets it out, and then get a long ſtick, and drive the ſcum toward the hole, or elſe it will remain with the lees.

CHAP. XLVI.

How to manage a Guile of Beer in exceſſive hot Weather.

IN ſuch weather as ſoon as ever there is the leaſt appearance of a Head working through, you ſhould begin to ſtir the

Beer. I know this practice is very contrary to the common notions, and even to the opinion of the moſt ſkilful brewers; but as I have followed it ever ſince the firſt hot ſummer after I began brewing, I can from repeated experience affirm, that the common prejudice againſt it is without foundation; and that it never is attended with any ill conſequences. The reaſons for which I recommend it are theſe.

In very hot weather beer is apt almoſt always to work too faſt, and this ſets it on the fret, and heats it; and by this means it is forced to be taken up ſometimes when it is but half worked, or at moſt but three parts in four; but by moving ſo ſoon after the firſt appearances of its working; and by repeating this motion frequently it is kept gradually working, as the head is continually beat into it; and this likewiſe keeps it cool, without which it would ſoon get upon the fret.

If this precaution of ſtirring the beer as ſoon as there is the leaſt appearance of a head working up through it, has been neglected, and the beer in the guile tun has begun to get warm, even then frequently ſtirring it is the likelieſt method to prevent bad conſequences, and check the too haſty progreſs of the fermentation, tho' there will then with all the care you can take be danger that you ſhould not be able to work it above three fourths before you are forced to take it up, (unleſs the guile has double the uſual quantity of hops, or be broke into other beer) whereas by ſtirring it ſo immediately after the firſt appearances of working you cauſe it to have half its working over before it can get ſuch a warmth as can have any effect on the yeaſt; ſo that for every motion you omit giving it preſently after it begins to work in very hot weather it will require five or ſix motions afterwards, and all of them probably together will be inſufficient, nor indeed can a guile when once it gets warm too ſoon be ever worked afterwards to its right pitch.

CHAP. XLVII.

The Cauſe of a Tun's appearing in its firſt Working with a large Bladdery Head, and what Methods are proper to be taken in this Caſe.

THis appearance of a large bladdery head in the firſt workings of a tun generally proceeds from ſome miſmanagement in whatever weather it happens; and the colder the weather is the greater muſt the miſmanagement have been.

This may happen, for inſtance, from its having been foxed in the under back; and whether the misfortune took its riſe there, wlll be known by its having a ſharp taſte; if it has been foxed in any of the other backs, the taſte will diſcover this likewiſe, for then the beer will taſte flat and muſty. If it have neither of theſe bad taſtes (which ſhewing that the beer has been foxed in the under back, or ſome of the other backs) this appearance muſt have been cauſed either by the having let down the worts too warm, or or the having over yeaſted them. If the wort was let down too warm the liquor will retain that warmth, of which you may judge by the taſte and feel ; and if by theſe trials you do not find that the wort was let down too warm, it is plain it muſt have been over yeaſted, which fault is likewiſe diſcoverable by the height of the head, which it carries in working. If this appearance of a bladdery head proceeded from the wort being foxed, either in the under back, or in any of the other backs a plentiful ſupply of yeaſt will be neceſſary, (tho' perhaps ſomething leſs for that which has been foxed in the other backs, than for that which was foxed in the under backs) for as that liquor which was foxed in the under back gets a ſharpneſs or acidity, and as all acidity checks fermentation, more yeaſt will be required to carry on this operation ; and as to the wort which is foxed in the other backs, a very thorough fermentation is neceſſary to carry off the ſtinking taſte which it has acquired. When you have given the liquor its full ſupply of yeaſt, you muſt be continually ſtirring it, (at leaſt every half hour) in order to work it off as faſt as you can, (unleſs by ſtirring it you can get the better of the heat.)

If this appearance has been cauſed from over-yeaſting (which muſt have been done to a very great degree indeed to cauſe this appearance at the firſt working) then the moment you perceive this appearance before the tun gets warm, (for you can command it better before it comes to a heat than afterwards, eſpecially if it be warm weather) you ſhould skim as much of the head from it as you think proper, (it is ſafer to skim too much of it than too little, for you can command it better before it comes to a heat, than afterwards, eſpecially if it be warm weather) and ſpread it thin, and as the liquor wants a ſupply, take for this purpoſe ſome of this ſkimming a little at a time, elſe you will miſs the virtue of the hop. If this appearance has been cauſed by the wort being let down too warm, you may take the methods deſcribed in a former chapter.

CHAP. XLVIII.

Why the Firſt Back ſhould not be ſwept until laſt in Brewing keeping Beer.

MAny perſons are apt to ſweep their firſt back after every wort, becauſe they think elſe it would foul the following wort; but there is not the leaſt foundation for this opinion; they who are inclined to make the moſt of their worts, ſhould either put them into the copper again, or if they do not approve of this ſhould let them remain in the firſt back until laſt, and the reaſon is when the firſt wort is drawn from the goods, they are left expoſed to the air, and thereby become more porous; ſo that when the next water comes boiling hot upon them, it has more power of diſſolving them, than the firſt had; and this being repeated twice muſt diſſolve them more than if the back were ſwept every time; beſides by this means the virtue of the hop is taken up from the other lees to go with the following wort, which elſe would go with the lees.

CHAP. XLIX.

How to manage a Guile of Beer, in order to its becoming what is called London *Porter.*

THis ſort of beer is not made becauſe the method of brewing it is the beſt way to convert malt into beer, but more from want of judgment or convenience for making other beer; (although long uſe has brought moſt people to like it) for there are too many who for want of judgment, or on account of the cheapneſs, inſtead of buying the ſweeteſt and beſt cured malts, which will make the ſtrongeſt beer, buy high coloured burnt-up malts (which give this ſort of beer its high colour) and the over-drying of malt takes off ſome of its ſpirit, and of courſe the beer made from it muſt be weaker and flatter, as porter generally is. In the next place, as many brewers want convenient room, if theſe malts were not ſo high-dried they would be ſubject to be foxed; inſtead of which they get a ſtinking taint; but as the worts ſeldom lie long in the under backs, they ſeldom taint there, but are more ſubject to catch this taint in the other backs, when they cannot be gotten from thence into the guile tun, eſpecially if it be forced to lie ſeven or eight inches deep (and the deeper it lies the more danger there is of its tainting) and as its heat declines to mere blood warm, that diſſolved part of the goods which ſhould aſcend cannot, becauſe the upper part growing cool ſooneſt becomes too denſe to let this fluid aſcend, and as room is often wanting, ſo alſo the guile tuns are generally made much deeper than they ought to be, for no beer that is worked in the guile tun ought to lie in temperate weather above two feet two inches deep, when the tun is built ſquare, and two feet ten inches in froſty weather. But moſt brewers without any regard to the weather work their beer about four feet deep, and ſome deeper, by means of which great depth the lighteſt parts (among which are to be reckoned the ſubſtance of the hops, which is of an oily nature) aſcend to the ſurface, and theſe remain; and beſides the fluid being in ſo great quantity, and lying ſo deep is more apt to work itſelf to a heat before it is purged, and as it is ſeldom ſtirred often enough, its lieing for a length of time without the yeaſt being frequently incorporated with, which on account of the great depth of the fluid ſoon riſes to the ſurface, (for want of ſtirring often enough) occaſions its being more or leſs tainted.

CHAP. L.

What cauſes Small Beer to appear with a large Bubbly Head in the Guile Tun.

THis appearance of ſmall beer when it comes into the Guile tun is always owing to ſome previous miſmanagement, either to its having been foxed in the under backs, or having lain too long warm, and deep in the other backs, or having lain coddling too long upon the goods in the maſh tun. If the cauſe of this appearance is the beer's having been foxed in the under backs, it will have ſomething of a ſower taſte, which is moſt readily diſcoverable if you taſte it juſt as it is going into the copper; for then it has no hop in it to overcome that ſourneſs. If the cauſe be its having lain too long warm and deep in the other backs, it will have a muſty taſte. If this bubbly head, on its coming into the guile tun, be owing to the liquor having lain codling too long on the goods in the maſh tun, there will be a light fluther on the top of the fluid, both before it goes into the copper, and it will appear foul and dusky in the firſt back.

CHAP. LI.

Why beer will be ſubject to be foul if it be worked off cool in the Guile Tun.

WHen a guile of ſtrong beer is worked off cool and never comes to heat at all, ſuch a guile will not be of a proper degree of fineneſs for going out, ſo ſoon as thoſe guiles which have had a moderate heat; and the reaſon is, that there is always ſome undiſſolved part of the ſubſtance of the malt in the wort of equal weight with the fluid, which conſequently neither floats on the ſurface nor ſinks to the bottom, but ſwims about in the body of the fluid. A moderate heat in the fermentation will cauſe a very great part of this matter to diſſolve to a fluid, and particularly would help to diſſolve thoſe lighter parts which, ſurrounding the heavy parts, ſupport them in the fluid, and then the heavy part will ſink, and what remains undiſſolved of the lighter parts will be light enough to aſcend above the ſurface of the liquor, and this may be properly called the light yeaſt; but for want of heat to forward this diſſolution and ſeparation of the light part from the heavy part, they will both remain ſuſpended in the body of the fluid, and conſequently the beer will be foul till theſe parts come to diſſolve in the caſk; by which means it will purge at every alteration of the weather for warmth, after which you may expect it to grow fine.

CHAP. LII.

Of the ill Conſequence of working off pale Beer too ſoon.

PAle beer is not to be worked off ſo ſoon as brown, becauſe it is made from ſweeter malt, which produces ſweeter wort, and the ſweeter the wort is, the longer time it requires for working; and if you ſhould attempt to work it off in twenty four or thirty hours, either by putting it warmer together than I have directed, according to the temper of the weather; or by putting to it a quantity of yeaſt ſufficient to work it off at once. This method will indeed cauſe it to work apace at firſt; but many bad conſequences will follow in both the putting it together too warm and the over-yeaſting it will make it work itſelf to a fret, and when it comes to be warm in about ſixteen hours, (inſtead of forty) you can never get it to work much farther, for the heat deſtroys the effect of the yeaſt before the beer can be half worked, ſo that the longer you keep it in the tun in order to work it farther, the worſe it will grow, and will either get foxed or acquire a very diſagreeable ſmatch in the taſte, or perhaps get a direct ſtinking taſte: if it be worked near the number of hours it ought to be on work; for in the very hotteſt temper, in which it will ever admit of being worked off, it ſhould not be leſs than forty eight hours from the time of its being pitched (though indeed ſixty or ſeventy hours, or even more, is the true time it ought to be in working.) But if the tun gets warm in about ſixteen hours, (except it be in very cold weather) you cannot keep it on to forty eight hours without its being damaged in the manner abovementioned; and if you endeavour to prevent this by purging it at about thirty hours working, you cannot expect it to be worked above half as much as it ought to be; for at every alteration of the weather for warmth it would ferment and grow every time ſourer and ſourer, till it would become more like vinegar than beer.

CHAP. LIII.

The Cauſe of a curdly, yeaſty head on a Guile of Beer.

WHen a guile of beer appears with this kind of head, this muſt proceed from its having been tainted with the ſharp ſort of fox, which it is liable to acquire in three places: *firſt*, in the maſh tun, by the liquor being taken too cool or ſtanding too cool: *ſecondly*, in the under back; and *thirdly*, in the guile during its working, for want of a ſufficient quantity of yeaſt, or the not beating the head in often enough; for when once it is got to its full work, if there be not yeaſt enough to continue its working ſo as to work off the ſweet taſte, that ſweet will turn ſower.

CHAP. LIV.

Why Beer will give over working, and afterwards work afreſh.

THIS is entirely owing to bad management, (except in exceſſive hot weather) in letting the tun get too warm before it be half worked; either by letting it down too warm, or over-yeaſting it, or by not moving it timely enough and frequently enough. For if once the tun get very warm before it is above half worked (unleſs it be cooled again) you cannot work it much faſter, altho' you were to uſe a double ſupply of yeaſt to it; for, by its being ſo very warm, the heat deſtroys the effect of the yeaſt, and cauſes it to ſink; ſo that to prevent its getting farther damage, it is generally purged, and the heat will cauſe the yeaſt to ſink in the barrel, as well as in the tun; ſo that when it comes to be cool in the caſk, as it was not worked nearly to its proper pitch, at every alteration of the weather for warmth, or upon moving, it will work afreſh, as will all guiles of beer, whether they have been yeaſted ſufficiently or no, that have not been worked to their proper pitch in the guile tun.

CHAP. LV.

How a Guile of pale Beer ſhould appear during the Time of its working.

A Guile of pale beer that is managed as it ought, will firſt appear in work in about fourteen hours, and with a fine curdly head; and in about ten or twelve hours after (which makes twenty four or twenty-ſix hours from the time of its being pitched) it will ſhew itſelf with a lighter frothier head, working ſtrait up from under the curdly head. Now if the tun, in the firſt appearance of working, appear with this light frothy head, inſtead of the curdly one, it is a ſign it was let down too warm, or over-yeaſted. After the appearance of this light frothy head, it will keep gradually riſing for the ſpace of twelve hours, or thereabouts, before it begins to fall (this completes the ſpace of about thirty-ſix or thirty-eight hours from the time of its being pitched.) If, therefore, Beer have theſe appearances in that ſpace of time, it is a proof that it has been well managed.

C H A P. LVI.

When a Tun ſhould have the greateſt Supply of Yeaſt.

AS a pale beer tun requires ſeveral ſupplies of yeaſt, and diligent attendance, to keep it in motion; and you ſhould endeavour to ſupply it in the day-time with no more yeaſt than will barely ſuffice, which, by keeping a diligent eye to it, and often ſtirring it, you will be judge of; and you ſhould give a greater ſupply the laſt thing you do, before you go to bed. The reaſons for this way of proceeding, are, that as the days are generally warmer than the nights, the tun works faſter in the daytime, and, without breaking your reſt, you have an opportunity of keeping a more watchful eye over it; and by giving it no more ſupply of yeaſt in the daytime, than is abſolutely neceſſary to continue its working, you may the better venture to afford it a large quantity when you go to bed.

CHAP. LVII.

Why Strong Beer requires moving in the Guile-Tun.

THERE are two principal reaſons to be aſſigned for the neceſſity of ſtirring ſtrong beer in the guile tun: *Firſt*, without ſtirring it (eſpecially if it be pale beer) you cannot get it to that ſpirit of fermentation which is requiſite for keeping it; for if you ſhould let it lie in the tun to take its natural courſe of fermentation, it will work itſelf to a fret, and ſo to a heat, by which means it will get foxed, and grow dead and flat; and if you ſhould purge it before it has worked to its proper pitch, beſides ſpoiling the ſtrength of the beer, you would loſe the virtue of the hop, becauſe the hop being a light oily ſubſtance, will aſcend with the yeaſt; and the beer will want the hop to preſerve it, and purging afterwards in the caſk, becauſe it has not been thoroughly fermented in the tun, it will grow more and more ſour every time it ferments, and alſo, for want of moving, the yeaſt will not ſo well incorporate with the beer; and by that means the guile will get foxed, inſtead of continuing to ferment, to preſerve the body of it.

CHAP. LVIII.

How a Guile of Beer ſhould be pitched in very cold Weather.

IN very cold weather, you ſhould not pitch above half the quantity of wort as in temperate weather, though with the ſame quantity of yeaſt, and the reaſon is this: All tuns ſhould be pitched ſo as to appear in equal work at about twelve or ſixteen hours after pitching them, except in very warm weather; and it cannot be thought that if a great quantity be pitched, it will get forward ſo ſoon as a leſs quantity: it may perhaps be ſaid, that a large quantity may be brought to the ſame forwardneſs of working, by letting it down warmer in proportion as the weather is colder; but there is danger, in this caſe, of its getting too great a degree of heat; neither is it adviſeable to put to it an extraordinary quantity of yeaſt, in order to advance its working, for then it will be apt to work too faſt, and ſo get warm too ſoon; and thoſe tuns which are over-yeaſted at firſt, throw all the yeaſt upwards, inſtead of its being incorporated with the liquor.

CHAP. LIX.

The Reaſon of pale Beer's appearing with a light frothy head.

THE appearance of a light frothy head in pale beer at the beginning of its working is occaſioned by the liquor being in too great a hurry of working, which is cauſed either by its having been let down too warm, or over-yeaſted; and if this hurry of working be not ſtopt, it will ſoon grow irrecoverable, by getting on the fret, and getting warm too ſoon. If this kind of head appear any time after the beginning, in the courſe of working the liquor, it is a ſign it has not been ſtirred enough, or has not had a ſufficient ſupply of yeaſt.

CHAP. LX.

How to manage the Working of Beer for long keeping.

IF you intend to keep your beer for a year or upwards before it is tapped, you ſhould brew it from new malt and new hops; and the reaſons are as follow: with regard in the firſt place to hops, the longer they are kept the leſs virtue they have, and fewer new hops will be ſufficient; and as to the malts, there is a greater briſkneſs and ſtrength in the new malts than in the old malts; ſo that the wort from them will bear longer working in the tun than that from old malts; by which you have the better opportunity of getting the virtue of the hop, to incorporate thoroughly with the wort. As to the management of the tun it ſhould not be worked ſo hot as when it is worked for preſent ſpending; and it ſhould be often ſtirred while it is working, in order to get the virtue of the hop, to incorporate the more thoroughly with it, that the beer may be well ſupported in the fermentations which it will undergo on every alteration of the weather for warmth. You muſt not expect this ſort of beer to be ſo ſoon fine as others that are worked off warm in the guile tun; and the reaſon is, that for want of its being about blood warm in working the part of the malt which remains undiſſolved on its entrance into the guile tun will not ſo readily diſſolve as if it were worked off warmer.

CHAP. LXI.

How to know when a Guile of Pale Beer is fit to be purged.

TO judge of the proper time for purging a guile of pale beer will require frequent inſpection, becauſe it will have ſeveral different appearances when it is fit to purge, the variety of which is owing to the various previous management of it. A well managed guile of beer will at its firſt appearance of working ſhew itſelf with a fine curdly head, after which it will keep riſing as far as the yeaſt will carry it, and when it ſinks again it will appear with a yeaſty head, whoſe folds will ſtill be drawing nearer and nearer together till the head be not above three or four inches above the ſurface of the beer: now if at the time of this appearance it has been ſixty or ſeventy hours in moderate working:

this appearance is one good ſign of its being fit to be purged; but to prevent your being at all deceived, four things are to be attended to, which muſt accompany this appearance, in order to leave you no doubt it is fit to be purged. Firſt, the time it has been at work, for unleſs it has been at work about ſixty or ſeventy hours, if it has a tolerable body, it cannot be fermented to that degree, to which it ought, in order to be fit for purging. Secondly, when you think the beer has worked a proper time, you ſhould about an hour, or ſomething more, after it has been ſtirred take a ſtick and beat the head into the beer, driving it ſix or ſeven times round in about the ſpace of a quart pot; and if the beer be fit to be purged, the head which you then raiſe by ſtirring it, will be of a true yeaſt and colour, and of a cloſe and ſolid yeaſty nature, which appearance is always a good ſign to the eye of its being fit to be purged, but if after ſtirring it in this manner, it ſhould appear with a frothy bladdery head, of a light colour, this is a ſign that it has not been worked ſo far as it ought to be, and that it wants a ſupply of yeaſt, unleſs it has had ſome very lately. A third way of trying, whether it be fit to be purged, is (when from the length of time, and other obſervations you ſhall judge it to be near the time of its purging) to take ſome of the beer from near the bottom, clear from any of the head, and put it into a pot, and ſhake it, and if after ſhaking it appears with a creamy head, this ought to make you ſuſpect it has not worked to a ſufficient degree; but if, on blowing this head aſide or quite away, the beer looks curdly and fine, between the curdles, this ſhews it is fit for purging, unleſs there has been ſome known previous miſmanagement to make an objection to it (ſuch as its having been too warm in its work from the firſt, or its having been over yeaſted, or not having been ſtirred often enough.) Fourthly, you are to judge of its fitneſs, by your palate: now if you frequently taſte a guile of beer during the whole time of working (if it goes on gradually in its working as it ought to do, you will find that the ſweetneſs of it will alter to a bitter beeriſh taſte, and all the ſweet taſte muſt be gone before by your palate you can judge it to be fit for purging, and in palating it you are as before, when you were judging of it by the eye, to take ſome from near the bottom without any of the head; and as this ſweetneſs is going off there will often be a ſmatch in the beer (which when it has, it is ſaid to be yeaſt bitten) and this ſmatch will ſometimes in great meaſure conceal the remaining ſweetneſs; but where you find this ſmatch, and that there is no ſweetneſs at all remaining, you ſhould begin purging the beer directly (even though it has not had its full ſpace of time for working) while there is head enough left to cauſe it to purge itſelf in the barrel.

CHAP. LXII.

Why the ſweeteſt Wort requires the moſt working in the Tun.

THE beer will not come to a perfect ſtrength of body till the ſweetneſs of the malts be worked off by fermentation, and there is much difference between the ſweetneſs of the brown and pale wort, for the fire, in making brown malts, takes off great part of the ſweet fermenting ſpirit before it is converted into a fluid, ſo that it does not require ſo much fermenting as that fluid which is ſweeter; the ſweeter therefore the worts are, the more fermentation they require in the tun, for till that ſweetneſs be quite worked off the beer cannot be ſaid to have done fermenting, and what is unfiniſhed of fermentation in the tun (which is the proper veſſel in which fermentation ſhould be compleated) will be purſued in the caſk, which frequently cauſes the beer to become ſower.

CHAP. LXIII.

Of the Danger of being deceived in judging merely by the Eye, when a Guile of pale Beer is fit to be cleanſed.

WHen a guile of beer has worked as it ought to do, it will carry a head not above two or three inches deep, ſolid, and of a true yeaſty colour, and full of furrows every way, folding inwards within the ſpace of two or three inches, and the appearance of ſuch a head as this after two or three days moderate working is a good token to the eye of its being fit to be cleanſed; but before you determine upon this you are to conſider whether the guile of beer has been worked from old or ſlack malt, or has been worked cool and long, or been over yeaſted; and the reaſons are, becauſe the fluid from old or ſlack malts is leſs ready and free to ferment than that from others, nor ſo apt to continue its fermentation, and unleſs it be let into the tun ſomething warmer than uſual, it will not work itſelf to ſuch a heat as to cauſe the head to deſcend : and the ſame thing is true of a guile that is worked long and cool, and if it be over yeaſted the beer will carry a high head in the tun, whatever be the temper of the guile for heat or cold, and when any of the above mentioned miſmanagements have happened to the beer, the head, inſtead of deſcending gradually after it has got up to its height, down to two or three inches, will deſcend a little at firſt, and there ſtop, tho' the beer be fit to be cleanſed ; ſo that a careful attention to the time the beer has worked, and to the management it has had, is neceſſary to prevent your being deceived in judging of its fitneſs for cleanſing by your eye.

CHAP. LXIV.

The ill Effect of Beer working too long in the Guile Tun.

WHen beer is worked too much in the tun it will never come to be palatable for draught, and the reaſon is when beer is worked ſo far there is no life or briſkneſs remaining in it, eſpecially in that which is made from brown malts.

CHAP. LXV.

How to judge by the Eye of cleanſing a deep or ſhallow Tun.

BEfore you attempt to determine by your eye whether a guile of beer be fit to be cleanſed, you are to conſider whether it has lain deep or ſhallow in its working, becauſe this will make a difference in the head, tho' the forwardneſs of working be upon an equality; and when the beer lies deep as it works in the tun, it will carry a much higher head than that which lies ſhallow, becauſe that part of the ſubſtance of the malt which remains undiſſolved in the fluid will float if there be depth enough to ſupport it, but ſink when the fluid is ſhallow; ſo that a deep guile of beer will carry a high working head as long as there is any life in it; but if you were to work ſuch a deep guile as you would a ſhallow guile, there will be no life left in it, for when once the head of it comes to fall, there is ſcarce life enough to cauſe it to work out of the barrel, much leſs to keep up a briſk taſte in it till the time it ſhould be drank.

CHAP. LXVI.

Of the ill Effect of pitching a Guile Tun to a ſmall Quantity in warm Weather with the uſual Quantity of Yeaſt.

WHen a tun is pitched to a ſmall quantity in warm weather with the uſual quantity of yeaſt, and you cannot have your next wort cool to follow it immediately, this will cauſe the guile to be in ſo ſtrong a ferment, and to work itſelf to ſuch a heat, that the head will not incorporate with it to keep it gradually working on as it ſhould do, for want of which it will naturally get upon the fret, unleſs it be carefully watched, and the head be frequently beat into it, that it may work regularly.

CHAP. LXVII.

Of the Effects of taking the Liquor too ſharp, or not ſharp enough.

IT is a ſtrong notion of many, who pretend to have great ſkill in brewing, that there is no ſuch thing as ſcalding the malt, (this is their term) and this they gather from their cuſtomary way of brewing, in which they take the firſt liquor boiling hot, to prevent the making a pudding of the goods; but I affirm, that this is not owing to good judgment in taking the firſt liquor boiling, but to ſeveral other precautions, viz. grinding their malts high, and not letting the liquor ſtand long on the goods; and yet notwithſtanding theſe two precautions when the malts prove bad, by their taking the liquor in ſuch a manner, they will be inclined to make a pudding, though not in ſuch a degree as that no wort runs from them, which, except it be the caſe, they never allow that a pudding is made: but no ſuch conſequence can enſue from not taking the liquor ſharp enough,

enough, for it is the ſharpneſs of the liquor penetrating too ſar at firſt that cauſes the goods and wort to be too glutinous to ſeparate from each other; but the ill conſequences of the firſt liquor being taken too cool, are that it requires very frequent maſhes before the malts will be well diſſolved into a fluid; and beſides, there is danger if you let a maſh ſtand half an hour, that the worts ſhould grow ſour on the goods, eſpecially if you are obliged to let one piece of wort wait for the coming of another, in order to make a full copper.

CHAP. LXVIII.

How to know when a Tun of Beer wants a Supply of Yeaſt.

IN cold weather the head is to be your guide in this matter; for, as you do not ſtir the tun ſo ſoon then as in warm weather, it will carry a much higher working head, and then the tun will not want a ſupply of yeaſt till the head does not riſe above a third part of its firſt height, unleſs it has been under-yeaſted at firſt; and this may be expected in about an hour after you have given the firſt ſtir, and then you may venture to give it a ſupply of yeaſt, but it will be beſt to ſupply it with a ſmall quantity at a time, if you can be always ready to watch it and ſupply it as it wants, and while the head continues ſinking gradually in yeaſty folds, you may ſafely ſupply it with ſmall quantities; but in warm weather you cannot be guided in this matter by the riſing of the head, becauſe you are then obliged to pitch it with a much leſs quantity of yeaſt and to ſtir it often; both which cauſes prevent its carrying a high head, and indeed in ſuch weather the head cannot be too low, provided the beer does not heat and fret; ſo that in ſuch weather it is difficult to know by the eye when it wants a ſupply of yeaſt: if indeed you have over yeaſted it at firſt it will carry a high head, and you may know it will want no more yeaſt, till the head ſhall have ſunk as low as before.

The beſt way of ſupplying a guile of beer with yeaſt in warm weather is, after you have conſidered the nature of your yeaſt and the degree of weakneſs of your wort, to divide the quantity of yeaſt which you judge will be ſufficient for working the guile into five or ſix portions, and after you have pitched the tun, when it has had about ſix ſtirs, (which may be given it in about ſixteen hours after its firſt appearing in work through the frothy head) you may give it one of theſe portions, and the next in about twelve hours afterwards, the next in ten from thence, and ſo for the reſt; at each time making it two hours leſs between each ſupply. But if you find it begins to get too warm in work before it be half worked, and that it will not bear to lie in the tun, on account of the warmth, long enough to be worked to its proper pitch (which may happen by a neglect of ſtirring it, or by letting it down too warm, or by over-yeaſting it) then you ſhould ſupply it with a greater quantity of yeaſt than uſual, and ſtir it twice as often. The reaſon of ſhortening the time between the ſupplies of yeaſt, and making the time between each ſupply two hours leſs, for each portion ſupplied after the firſt, is this, that in warm weather the beer is at firſt naturally inclined to work of itſelf, and therefore needs leſs aſſiſtance; but as nature gradually declines doing this office, ſo more and more aſſiſtance is required to ferment the liquor to its proper pitch.

N. B. If at any time between the ſtirring the liquor there appear a light, white, frothy head, differing in the lightneſs of its colour from the other, this is an evident ſign it wants a ſupply of yeaſt.

CHAP. LXIX

How a Guile Tun ſhould be built.

TOO many perſons, after they have conſidered what quantity of beer the tun is to hold, never conſider what is the proper depth, but contrive its proportions merely anſwerable to the room they have for it, and ſo often build it twice as deep as it ſhould be, whereas the depth is the moſt important conſideration. If you intend to build them ſquare, they ſhould not be above fourteen inches deep in wort for brewing in temperate weather; but if you purpoſe to build them two inches wide to every three inches of length, then you may allow them to be ſixteen inches deep. The reaſon why the ſquare tun will not admit of ſo great a depth as a long and narrow one is this: the more any fermenting body lies in a ſquare, the more ſubject it is to heat too faſt, becauſe it has not ſo many feet of ſurface to cool it, as when it lies all collected in a long and narrow ſpace.

CHAP. LXX.

In what Part of the Hops their Virtue reſides.

MANY think the goodneſs of the hops is in the flower, others, that it is in the ſeed; but I am perſuaded the chief virtue is in the leaf, and that for theſe reaſons: all ſkilful brewers will agree that the ſofteſt hops are the beſt for brewing; now it is plain the ſoft hops have no more ſeed or flower than any other ſort of hops; therefore the chief virtue of them cannot lie in either of theſe, but in the leaf, and that there is more oily ſubſtance to be drawn from theſe than from the other ſorts.

CHAP. LXXI.

Why more Beer is ſpoiled in warm Weather than in any other Weather.

THE principal reaſon why more beer is ſpoiled in warm weather than in any other, is, that there is ſcarce one brewhouſe in twenty that has coolers large enough for brewing, in temperate weather, as their worts follow one another very faſt, much leſs in very warm, or in exceſſive hot weather, which require it to be let down as cool as the weather will admit it to be; ſo that in ſuch weather it will get foxed in the backs, if it do not get cool in eight hours, which is the longeſt time it can be kept without damage, though it may receive damage in leſs time: and if, in order to prevent its being foxed in the backs, the brewer ſhould hurry it into the tun before it is cool, there is great hazard of its being ſpoiled there, becauſe, being too warm in working, it will ſoon get on the fret, and ſtill grow warmer and warmer, till the yeaſt will ceaſe to have effect, and it will not only get the ſharp fox, but be flat, and yeaſt-bitten likewiſe. If, therefore, you would brew good beer in warm weather, you ſhould brew no greater quantity than you think you can get cool (as far as the weather will admit it to be) in conſiderably leſs time than in temperate weather, becauſe it is ſubject to get damage in half the time (in every place except in the copper) in warm weather. This caution you ſhould obſerve, how much room ſoever you have for the backs, unleſs you have likewiſe ſo much tun-room as that the beer need not lie above ten of eleven inches deep; for if it lies any deeper, the heat of the weather will not allow it to lie a ſufficient time in the guile-tun to compleat its office of fermentation. But if neceſſity obliges you to brew your full quantity in hot weather, then, ſuppoſing you have room enough for the backs to let down the wort as cool as the weather will admit it to be, you ſhould divide the worts into the guile-tun, in ſuch manner as that they may lie no deeper than is mentioned above, and by this means you may be able to keep them cool in working; and for fear you ſhould make a difference in the body, or the working, by thus dividing them, you ſhould, about four hours before they are fit to cleanſe, mix them, yeaſt and all, into one tun, and keep ſtirring them often, till they are fit to cleanſe.

CHAP. LXXII.

Why the Weather which is to be expected ſhould be conſulted, before you hop your Beer, as well as the Weather at the Time of hopping it.

THE temperature of the weather may be the ſame in *April* as *September*, and yet if you were to hop your beer equally in both ſeaſons, becauſe the heat of the weather is equal, the effects would be very diſproportionate, (eſpecially ſuppoſing both guiles under-hopped) for that which was brewed in *September* may keep ſound by the coming on of the cold weather, whereas the other, by the coming on of the hot weather, may get ſour by *September*, if not before; for the heat of the weather keeps it continually purging, and by this purging, the body of the hop conſiſting of an oily ſubſtance, as all ſuch ſubſtances will be uppermoſt in fluids of a different kind, ſo will this of the hop; ſo that while the beer is fermenting, the oily ſubſtance of the hop will be continually working out, inſtead of incorporating with the beer; wherefore liquor brewed in *September* will not require ſo many hops as that which is brewed in *April*; for all beer which is worked as it ought to be, for ſeven or eight months keeping, will not purge directly after its coming into the ſtorehouſe, except in very hot weather, which is not to be expected after *September*; ſo that the hop in the *September* brewed beer has time to incorporate with it before the weather can grow ſo hot as to have any bad effect, but this time it cannot have when the beer is brewed in *April*.

CHAP. LXXIII.

How to manage Wort when the Backs are very much foxed.

WHEN you know your backs to be much infected with the Fox, you muſt act very cautiouſly, eſpecially with reſpect to the ſpreading your firſt wort; and when your firſt back is fit to be let go, let no more of it go than will ſpread the other backs as thin as poſſible, and before you let it go, ſkim the infected working head clear off, and put it by itſelf; and when you have proceeded in this way ſo long, till the latter part of the wort begins to decline in its heat, then, for fear it ſhould be damaged, (of which there would be danger, even though the back was not before infected) before it declines to blood-warm, it ſhould be ſpread all over the backs, and kept in continual motion till it grows quite cold. The reaſon why the backs ſhould be ſpread ſo thin at firſt, is, that the thinner the wort lies, the faſter it will cool, and by taking a little at a time, the remaining part will keep the hotter: now the hotter that keeps (until it be declined in heat to half way between boiling hot and cold) the leſs danger there will be of its getting damage.

The beſt way of keeping the pump in motion, is this: As there is generally a pump in the guile-tun, ſweep your firſt guile clean, then pump up into it the cold wort which you had let down, and then you may begin letting the other down, in order to ſet it in motion, and as faſt as the other comes down, you ſhould keep pumping up, and ſo continue till it get quite cold and fit for working.

CHAP. LXXIV.

By what Means the Backs become foxed.

BREWERS are often unfortunate for want of this knowledge; for when the backs are a little infected, the brewer, for want of knowing this, lets the infection go on, till a whole guile of beer is ſpoiled.

This misfortune generally happens in old decayed backs; for the joints of ſuch backs are generally a little open, and in the cavities of theſe joints, and other decayed and hollowed parts of them, the ſediment of the wort gets in; and as the backs are ſhifted, this ſediment dries, and becomes a perfect yeaſt, which immediately ſets the next piece of wort on working.

CHAP. LXXV.

Why exceſſive warm Weather is preferable to exceſſive cold, for ſmall Brewings.

AS the working of the beer in the guile tun is the principal point in Brewing; for in all weathers it ſhould work on there, for the ſpace of ſixty or ſeventy hours, gradually increaſing in its warmth, and not coming to its full heat, which ſhould be about blood-warm, till it is fit to be cleanſed, this point is more difficult to obtain in cold weather than in warm; becauſe where the quantity is but ſmall, as is generally the caſe in private brewings, in exceſſive cold weather (unleſs your tun ſtand in a very warm place, or be deeper than it ſhould be for brewing all the year round) you muſt let the worts down very warm, and then the heat will be very likely to deſtroy the effect of the yeaſt; and if they ſhould be let down cooler in cold weather, it will ſoon become as cold as the weather, which would equally deſtroy the effect of the yeaſt; and if the weather continue cold, the guile cannot be worked to its due pitch in leſs than a week or a fortnight, and will never come to that degree of heat that it ought, for want of which it will not only be the longer before it be fine enough to drink, but will, after all, drink flat and chilly, till the weather's turning warm ſhall cauſe it to purge.

CHAP. LXXVI.

The Cauſe of a Tun of pale Beer appearing with a ſmall frothy Head in its firſt working, and what is the proper management in this caſe.

WHEN this kind of head is the firſt that appears in working, it is generally ſeen in fewer hours than the fine curdly head, and the cauſe of it generally is either the wort's having been let down too warm, or the beer having been over-yeaſted. Now if all the wort be let down, the following ſigns will enable you to judge which of the two was the fault.

If it were over-yeaſted, and the temperature of the weather would permit you to let it lie without moving, you will know this by its carrying a higher head than uſual before it falls. If the wort was let down too warm, the ſame head will fall ſooner than uſual.

The beſt way of managing a guile of beer, in which this light frothy head appears in its firſt working, inſtead of the curdly head, is to give the tun a ſtir as ſoon as you perceive this appearance, and continue ſtirring it every hour, or hour and an half, according to the forwardneſs of working in which you ſhall judge it to be, till you have checked the hurry and violence of its working, or till the firſt yeaſt be ſpent, and it wants a freſh ſupply.

CHAP. LXXVII.

The Method of working Beer brewed from new Malts.

WORTS produced from new Malts are much freer in working than worts brewed from old malts, though they may not be any forwarder in their firſt coming to work; but they will work much freer and longer, and the reaſon is, the longer any grain is kept, the ſlacker it grows, and loſes the more of its fermenting ſpirit. If you ſpread the malt abroad, as it comes off from the kiln, and let it lie till it be cool, and then put it together again, it will ferment of itſelf, till it grow warm, and in the ſame manner it will act when converted into a fluid; if it have not already gone through this operation, while it was malt, the beſt way, therefore, of proceeding with worts brewed from new malts, which have not yet acquired a natural heat, is to let them down into the tun ſomething cooler, and move them ſooner and more frequently than uſual, leſt, as they are free and laſting in their working, they ſhould come to fret, and grow warm too faſt.

CHAP. LXXVIII.

Why new or old Beer drinks beſt in warm Weather.

BEER that is of a middling Age, is always the worſe for drinking in warm weather, than new or old beer; and the reaſon is, it is more ſubject to be in a ferment, than either of the others; and as every new fermentation of beer in the caſk increaſes the danger of its becoming either ſour or vapid, ſo beer of a middling age is more likely to have one or other of theſe faults than new beer; which will either not have yet fermented in the caſk at all, or but once; or than old beer, which will have undergone ſo many fermentations as not to be liable to have any more raiſed in it.

CHAP. LXXIX.

What Beer is proper to be fined by ſpirituous Liquors.

ALL ſorts of beer are not to be fined by ſpirituous liquors; but when theſe liquors are put into beer that is very briſk in its fermentations, they will abate the violence of the fermentation, and by that means haſten the ſubſiding of the ſediment, and conſequently the fining of the beer; and I believe they would be very ſuitable likewiſe to beer that is under-hopped and inclining to grow ſour; becauſe beer that has a tendency to ſourneſs is ſubject to ferment at every increaſe of warmth in the weather, and, for want of hops to ſupport it under theſe fermentations, it will grow more and more ſour every time; but by putting ſpirituous liquors to it you may prevent its growing worſe, though it will ſcarcely ever be recovered entirely from the ſourneſs, unleſs you apply them in its firſt fermentation.

CHAP. LXXX.

How to manage with bad Yeaſt.

IT may often happen when a guile of beer is depending, that the brewer may not have yeaſt enough of the good ſort, ſo that he muſt be forced to make uſe of ſome of the bad yeaſt: in this caſe many uſe the good yeaſt firſt, for fear their beer ſhould never work; but herein they are miſtaken, and ſhould, on the contrary, uſe the bad yeaſt firſt; and the reaſon is, it is eaſier to ſet fermenting bodies on fermentation than to keep up the fermentation after it has been begun ſome time, for the wort at the beginning has a tendency to fermentation in itſelf, and therefore needs the leſs aſſiſtance from without, but after it has fermented ſome time, that part of its ſubſtance, which is moſt apt and free to ferment, has vented itſelf: the beſt yeaſt is therefore needed to carry on the beer in its fermentation in this latter ſtage of it.

C H A P. LXXXI.

How ſtale Beer is to be managed.

TOO many, being in haſte to get rid of their ſtale beer, put ſome of it into every guile of new beer; but this is a great fault, for pale beer ſhould not be broke into tun, but ſuch as are to ſtand near a twelvemonth before they go out, for, through want of time for the hops to incorporate perfectly with it, it will drink new, bitter and ſour: beſides, this rule of breaking the ſtale beer only into ſuch guile tuns as are to ſtand near a twelve-month; by which means they will have time to have two or three natural purges, which will unite them more perfectly, and make the beer more likely to have but one taſte (and good beer never ſhould have more) beſides this, I ſay you ſhould uſe the beſt hops, and a third, or half as many more than uſual, proportioning the quantity of the hops to the quantity of ſtale beer you intend to break into the guile of new, and to the degree of its ſtaleneſs; and this beer ſhould be worked as uſual with the back lees, whether it be a guile of brown, or of pale beer, and the ſtale beer ſhould be broke into it about four hours before you purge it, and ſtirred three or four times in the interval between the breaking the ſtale beer into the guile, and the purging it; as to the quantity of ſtale beer to be mixed with each guile of new, it depends on various circumſtances; if it were purged ſooner in the guile than it ſhould have been, leſs of it muſt be mixed with the guile of new beer; as likewiſe the ſtaler it is the leſs can with ſafety be broken in, and if it be very ſharp you had better throw it away than break in any at all; the cooler the cellar is the more ſtale beer you may venture to break in, and *vice verſâ*, and after attending to all theſe conſiderations, you had better under-do it than over-do it in the firſt guile, increaſing the quantity in the ſucceeding ones gradually, till you have found the full quantity, which you may venture to mix with a guile of new beer.

CHAP. LXXXII.

Of frequent Maſhing.

IN order to haſten the diſſolution of the malt you ſhould, inſtead of letting the wort lie quiet two or three hours upon the goods, ſtir it every half hour, and then you muſt let it go ſooner, than if it lies ſtill two or three hours, for elſe by growing cool it will be liable to get foxed. This frequent ſtirring promotes the complete diſſolution of the malt, for as the liquor penetrates the ſubſtance of the malt, the fluid becomes glutinous, and is not eaſily ſeparable from the undiſſolved ſubſtance; but the more you clear the glutinous fluid from the undiſſolved ſubſtance, (which is done by frequent ſtirring) the more power the ſucceeding liquor has to penetrate the ſubſtance, by this method therefore of frequent ſtirring the wort, and by uſing ſix liquors, i. e. two to every copper of wort, you may gain ſome time in every brewing, and will leave as little undiſſolved ſubſtance as poſſible in the goods.

CHAP. LXXXIII.

How to produce the moſt Yeaſt from a Guile of Beer.

AS yeaſt is produced from the undiſſolved ſubſtance of the malt, of which the lighteſt part goes off with the worts, and the heavieſt ſettles in the backs, and as many perſons, who are ignorant what advantage may be made of that which thus ſettles, throw it away, whereas if rightly managed it may prove of great value, and both good yeaſt and good beer be procured by its means, and I would recommend the following, as the beſt method. To this end,

Sweep down the backs with a little of the laſt wort, which you may leave with them, then ſtrain the hops from the wort and put them in a veſſel, in which they may lie as thick or deep as a guile of beer, and take care not to put the veſſel in too cold a place, then ſet them on working, and keep on the working for two or three days, or more, till they are worked as far as a guile of pale beer would require, (but with care, that they may not get too much heat in working) and this way will produce from theſe ſettlings a conſiderable quantity of yeaſt, and what is not yeaſt will be beer, and of a ſtronger body than that from ſtrong worts, even tho' theſe ſhould be only the lees of ſmall beer; by this means you not only get a greater quantity of yeaſt, but a ſmall quantity more of ſtrong beer; and in order to ſeparate the beer from the yeaſt you may proceed thus. After you have cleanſed this guile, or the next, which ever ſuits you beſt, then put theſe lees ſo worked, as before-mentioned, into the tun; and there they lying thin the beer will ſeparate from the yeaſt, and you may draw off the beer, and what is left behind will be as good yeaſt as the bottom of a tun of a pale beer guile, if not better.

CHAP. LXXXIV.

By what Miſtakes ſour Beer is often made worſe, inſtead of being made better.

MANY brewers when their beer is grown never ſo little ſour, immediately are for giving it a feed, as they call it, which they think will preſently recover it, without attending to that predominant bitter which it may have at the very ſame time it is a little inclined to be ſour, and which bitter would of itſelf in time recover, and of theſe feeds there are various kinds; ſome make uſe of wheat, and of all other ſorts of grain; ſome uſe melaſſes, ſugar, fruit, and other ſorts of ſweet bodies; but all theſe kinds of ſeeds as they are bodies which have never yet been fermented, will only cauſe the beer to ferment the more, and as fermentation, where there is not a ſufficient quantity of hops to ſupport the liquor under this operation, is a very principal cauſe of beer's turning ſour, ſo in this caſe, even ſuppoſing there were at firſt a ſufficient quantity of hops, and that the predominant bitter produced from them might ſoon have recovered the beer from its firſt ſourneſs, theſe ſweet, and yet unfermented mixtures, by raiſing more fermentations than the beer would otherwiſe have gone through, and conſequently more than the original quantity of hops was ſufficient to ſupport, increaſe the ſourneſs; inſtead of remedying it.

CHAP. LXXXV.

Why the ſmalleſt Bodied Barleys ſhould be uſed for making pale Malt.

IT is very neceſſary to give a reaſon for my opinion on this head, becauſe it is very different from the judgment of thoſe who profeſs moſt ſkill in the art of malting or brewing; my reaſon is this: the corn which is deſigned for making pale malt, will not admit of lying ſo long on the floor, as that which is deſigned for brown malt, for fear of diſcolouring it, on which account you cannot let the corn of which you deſign to make pale malt lie as long as it ſhould do, in order to grow mellow, for fear of its being too high coloured; and there is a greater difficulty in converting ſtrong bodied corn into pale malt, than ſmall bodied corn, becauſe that which is ſmaller bodied will ſooner get mellow, and the ſooner it does that, the leſs it will diſcolour the malt, and the ſooner it will be dried.

CHAP. LXXXVI.

How to Brew a Brewing of all Small in the Copper.

I Have never heard that this experiment of brewing all ſmall beer in the copper has been attempted by any one; nor have I tried it myſelf, but I believe it poſſible, provided the malt can be hindered from ſettling and cauſing the bottom of the copper to burn, and the likelieſt way to ſucceed in an attempt of this kind, appears to me to be as follows.

Take the full quantity of liquor, which you propoſe to convert into beer, from the malt, heat it, but not nearly ſo much as that which you turn off upon malt in the maſh tun, becauſe that needs more heat, as it not only cools in going off, but this coolneſs is increaſed by its being received into the cool tun; then put your malt to it in the copper, and keep the liquor to the ſame pitch of heat as tho' it were really in a maſh tun, (by increaſing the heat gradually, till at laſt you raiſe it to boiling heat) for twelve or ſixteen hours, or till you ſhall find that the malt is diſſolved to a fluid, as much as when maſhed in a maſh tun; and I think it ſhould be often ſtirred to prevent the bottom of the copper from burning, and the hops ſhould be put to it three or four hours before you let it off, and you ſhould be well provided with ſtrainers to ſeparate the grains from the wort when you let off the latter.

CHAP. LXXXVII.

What Beer ſhould be ſtopped cloſe, and what ſhould not.

WHen beer has been worked in the guile-tun beyond its proper pitch, it cannot be expected to purge much in the caſk, therefore to prevent its growing flat, in this caſe, as ſoon as it is ſettled in the place in which you propoſe it ſhould ſtand, you ſhould bung it as cloſe as you can; but when beer has been worked to its true pitch it ſhould be allowed ſome little vent, by leaving the vent-pegs rather looſe, becauſe for want of this it may be forced into too great a fermentation; the degree therefore of fermentation which beer has had in the tun, muſt be your rule to judge whether you ſhould give it vent in the caſk or not.

CHAP. LXXXVIII.

How Beer ſhould be bottled for Shipping.

BEer that is to be bottled for ſhipping ſhould be kept two ſummers in the caſk before it is bottled, and the reaſon is this: if it ſhould ſtand but a year and a half in the caſk, and but one ſummer, (eſpecially if that ſhould prove a cool one) it will not have compleated its fermentation, and if it be bottled and ſhipped before it has gone through all its fermentations, the heat of the ſhip will ſoon ſet the fermenting ſpirit in motion, and break the bottles; it ſhould not be bottled therefore till it has entirely done fermenting, and is become very fine, if it be not naturally fine of itſelf; and it is adviſeable alſo to bottle it in clear weather, and to let it ſtand in the bottles a day or two uncorked, in order to damp that ſpirit, which elſe the warmth of the ſhipping would force into a fermentation, and the bottles ſhould be long necked, and filled but juſt to the neck, that there may be room left for the air to expand in caſe a fermentation ſhould ariſe in the bottles during the voyage; the ſpirits diſtilled from the back lees are a very great damper of fermentation; ſome of theſe therefore you may put to your beer, to prevent its fermenting, if you are not afraid of ſpoiling the beer by this means.

CHAP. LXXXIX.

What Sort of Beer requires a Feed.

NO beer requires a feed but that which has been over-fermented, and which by that means is become flat and dead. Now the uſe of all feeds (bitter ones excepted) is only this, to renew the ſpirit of the beer againſt an alteration of the weather for warmth; and one of the moſt proper feeds is the following.

Take the ſweepings of the firſt back, together with a little of the wort, and, when cool, ſet it on fermenting, and, when it is about half worked, put two gallons or thereabouts of it to a barrel, and this will give it a new ſpirit when the weather grows warmer. In theſe back lees there is much of the virtue of the hop, which, as the wort runs off, remains with the lees; ſo that if the lees ſhould cauſe a ſtrong fermentation, the virtue of the hop will ſupport the beer in it.

CHAP. XC.

Of the Method of corking Caſks.

THE general method of corking casks is to take the firſt cork that fits, by which means the ſmalleſt cask often gets the beſt cork, which the large caſk ought to have; for the greater the preſſure of the liquor is on the cork, the better the cork ſhould be; and even in the ſame caſk ſome difference is required between the lower and the upper cork, becauſe the preſſure is greateſt on the lowermoſt. Care alſo ſhould be taken that the cork be not fitted too tight before you drive it, becauſe elſe it may be likely to pucker in rags at the ſides of it, and ſo give room for the liquor to leek. Deep corks are alſo better than ſhallow ones where there is a great preſſure of liquor and a large tap-hole; for ſhallow corks ſeldom come through the thickneſs of the wood, except it be a very thin caſk: and for want of this the preſſure has much more power to force out ſuch corks than the deep ones, which come through; for in that caſe the part of the cork which is on the inſide will ſwell and become more difficult by that means to be forced out.

CHAP. XCI.

How to cure a ſtinking Caſk.

THERE are various methods of doing this; ſome take out the heads and ſcald the caſks thoroughly, and then let them ſtand ſome time open, to be ſweetened by the air; and they are cured by being expoſed to the ſun, or by undergoing a froſt or two; others fire them if they are wanted for ſpeedy uſe. But in my opinion, the moſt expeditious and eaſy way of curing them is, after ſcalding them, as mentioned above, to fill them with your hotteſt grains, as ſoon as they have done running, and then lay the head on them, to keep them hot as long as poſſible; and this being repeated twice or thrice may be of great ſervice. Some people, after ſcalding them, put them over the copper-hole while the copper is boiling; and ſome chuſe to fill them with the back waſh after they are ſcalded; others there are who think proper to ſtart in them directly, without taking any other methods firſt; but this is a hazardous way; for if the ſtinking caſk ſhould be a barrel and very much tainted, and you are ſtarting into hogſheads, it may all go into one and ſpoil it all; but after the previous methods of curing the caſks have been uſed, it is certainly very proper to ſtart in them once or twice before you fill them, to let the beer lie in them.

CHAP. XCII.

How to preſerve the Virtue of the Hop with every ſeparate wort.

IT is not uncommon for brewers to have their ſmall beer much bitterer than their ſtrong; and the reaſon, as I conceive, is this; the virtue of the hop conſiſting in a light oily ſubſtance, which will therefore always float on the top of the worts, unleſs you draw the wort off very faſt, (which is not adviſeable) this oily ſubſtance will be left with the lees; and as many brewers are moſt careleſs of their ſmall worts, they often let theſe down faſter than the reſt; by which means the oily ſubſtance and great part of the lees come along with them: and this is the chief reaſon why their ſmall beer is ſo often foul and bitter; but the beſt way to have every wort equal for bitterneſs, is to obſerve when you can ſee the lees at the higheſt corner of the back, and then get a ſtick long enough to command the whole back, and ſkim it all over and let them go with the wort.

CHAP. XCIII.

How to prevent the Fox from gathering when it appears.

THO' there are not many who well underſtand the true nature of the fox; yet all are ſenſible that it is frequently cauſed by the heat of the weather, and I have already given rules in what manner to ſpread the wort, in order to prevent the coming of the fox: but when you perceive it begun in a back of wort ready to be let down into the tun, the beſt way to prevent it from gathering is, to take a ſtick long enough to command the whole back, and while the worts are running down, skim the working part to the pipe, and let it run into the tun along with the wort (for this will do the wort no harm;) and unleſs the working part be thus skimmed to the pipe, but little of it will run down, becauſe the bottom of the back detains the greateſt part, before it can get to the pipe; but by thus making it all run down, if the backs are but little infected, you may prevent the progreſs of the fox in them.

CHAP. XCIV.

How to work Beer brewed from old Malts.

THE wort made from old malts is not ſo free in working as that from new malts, altho' it may come to its firſt working as ſoon, but it will neither work ſo fiercely, nor ſo long; and the reaſon is all grain by long keeping will grow ſlack, and the fermenting ſpirit of it will abate; wherefore when you brew with ſuch ſlack malts you may venture to let the wort down into the tun ſomething warmer than you otherwiſe would, in order to bring them to that moderate heat which is neceſſary to make the head deſcend, and incorporate with the guile, both for getting more of the virtue of the hop, and for keeping the guile on work; but without this caution the guile will never get to the proper degree of heat, unleſs you let it lie a long while in the tun, and then there will be danger of its being foxed; and if, to prevent this, you ſtir it frequently, you will keep it cool; and when beer is worked off cool, the head, inſtead of deſcending, (as heat would cauſe it to do) will aſcend, and will be high, and bladdery, inſtead of being ſolid and ſhallow, and may by this appearance lead you into a miſtake with regard to the proper time for cleanſing the tun.

CHAP. XCV.

The Cauſe of a Tun of pale Beer not appearing on work in about twelve or ſixteen Hours after its being pitched, and how to manage in ſuch a Caſe.

THis fault proceeds either from the worts having been let down too cold, or from their having been under yeaſted; if this fault of not coming to be on work, happen in temperate weather, it is certain the worts were under yeaſted, and in ſuch weather this needs no remedy, unleſs you want the tun for a following brewing; and if you ſhould in ſuch weather endeavour to rectify this backwardneſs, in working you would run a greater hazard than by letting it take its chance; for in ſuch weather you may always have a greater command over your guile of beer when it is too backward in working, than when it is too forward. If the tun ſhould be backward in appearing to work in cold weather, this may proceed from either of the beforementioned cauſes, the worts having been let down too cold, or their having been over-yeaſted; and a mere ſpectator cannot be a judge from the appearance only, from which of the two cauſes it procceds; but the brewer himſelf muſt know whether he put in his full quantity of yeaſt, in proportion to the temperature of the weather at the time of yeaſting the worts, which if he did not, the fault plainly was under-yeaſting it; but if he did, it is as plain the worts were let down too cool. If want of yeaſt were the cauſe of the backwardneſs in working there, it is not dangerous, in cold weather, to give the guile a freſh ſupply, or if you have more worts to follow, you may let them down ſomething warmer, if the weather be very cold, but not elſe, for fear the guile ſhould get warm too faſt.

CHAP. XCVI.

How to prevent hard Beer from going worſe.

WHEN beer, together with a ſharp taſte, has ſtill a ſtrong flavour of the hop, it is poſſible that after a fermentation or two it may recover itſelf; but where this ſharp taſte prevails, and ſcarce any flavour of the hop remains, there is great reaſon to fear it will grow worſe; in this caſe, therefore, you ſhould draw it from the ſtale lees, and take the back lees of your brewing, with a little of the wort, and work it cool as far as it will bear (as you would do pale beer) then put to every barrel three or four pounds of hops taken out of the copper juſt as they have boiled.

CHAP. XCVII.

How to know when Beer is at the beſt.

BEER is never better than when it has but one clean taſte, compoſed of the intimate union of its three ſucceſſive diſtinct taſtes, *viz.* the ſweet, the bitter, and the ſour, and when no one of theſe taſtes is predominant: as to all other ſmatches, they are owing to bad management; but there is no fixed time for all beer's coming to this clean taſte, for this entirely depends on the management it has undergone in the brewing. If the wort were let down very fine from the backs, and afterwards worked as far as it would bear in the guile-tun, ſuch beer will arrive at this one clean taſte, as ſoon as it has had one or two purges in the cellar; and this may come to paſs in a few months; but if the worts were let down foul, and had but little working in the guile-tun, the beer will not be of one clean taſte in leſs than a twelvemonth, if it ſhould then; for every litttle alteration in the weather will make ſuch beer ferment in the caſk, and its lees alſo are of a cloſer ſubſtance than thoſe of beer which has been worked to the fulleſt pitch it will bear in the tun; and, of conſequence, they are more hard to be diſſolved, and till they are diſſolved will not let the beer lie quiet; and the three taſtes before-mentioned will never be intimately combined, ſo as to form one clean taſte, but till the beer has gone through all its fermentation, the ſweet, the bitter, and the ſour will each predominate in their turns.

CHAP. XCVIII.

Why the Worts will get warm in working, though they were let down cool.

THIS does not proceed from any one ſingle point in the management of them, but from many, and particularly from the nature of the malt, and the under or over-yeaſting them. With regard to the malt, ſlack malts are moſt ſubject to heat in the tun, becauſe malts that are ſlack dried are more free to work than ſuch as are well dried, becauſe the fire in drying them takes off a great deal of their fermenting ſpirit: this is indeed the purpoſe of drying them, that they may keep the better before they are turned into a fluid.

As to the want of yeaſt occaſioning this effect; by this is not meant a want of yeaſt at its firſt coming to work, but a want of it after that yeaſt which was firſt put to it, has carried it on in working, as far as it was able; for in this caſe, the want of a freſh ſupply often cauſes the wort to get on the fret, and ſo into a heat. Too great a quantity of yeaſt at firſt will alſo do ſo, becauſe when a tun is over-yeaſted at firſt, it will work much faſter than it ſhould, and by that means force the yeaſt to the top, inſtead of letting it incorporate with the guile, ſo as to carry on the fermentation gradually; conſequently the body of the guile will experience the ſame effects from this over-yeaſting at firſt as from want of a freſh ſupply afterwards.

C H A P. XCIX.

Wherein Starting is a Help to the Beer.

BEER is helped two ways, by ſtarting: *Firſt*, This augments its ſtrength: *Secondly*, it makes it the better for keeping.

It increaſes the ſtrength or body of the beer for this reaſon, becauſe the extraordinary motion of ſtarting waſhes off and diſſolves all the light matter round the heavier undiſſolved part (which muſt begin to diſſolve from the outermoſt parts) whereas if this undiſſolved matter were to lie in the caſks without ſtarting, it is a queſtion whether half the quantity would diſſolve into a fluid, and the more of this ſubſtance is diſſolved, the ſtronger the fluid is; and I am fully perſuaded that the ſtrong worts will always come to work ſooner than the ſmall ones. By ſtarting alſo, beer is made the better for keeping, becauſe you ſtart it out of the caſk before it has done working, and by that means prevent ſome of the light yeaſty head, in which lies part of the hop, from going with the reſt, and on the contrary help it to incorporate with beer for the ſupporting it in its fermentations.

CHAP. C.

How Small Beer ſhould be let down into the Guile-Tun.

SMALL and weak fluids are harder to be brought to purge than ſtrong ones, and for this reaſon, they ſhould have ſome aſſiſtance; and the beſt way of aſſiſting them is to let them down into the tun ſomething warmer than the ſtrong, in all degrees of heat of the weather, except in ſuch weather as will not admit of the wort's being let down, near ſo cool as they ought to be; and in ſuch weather you muſt be contented to let down, both ſmall and ſtrong, as cool as you can get them to be.

CHAP. CI.

When a Guile of ſmall brown Beer is to be cleanſed.

AS this beer is made from wort the leaſt ſweet of any, it requires alſo alſo the leaſt working in the tun; and you are to be guided in the time of your cleanſing it, by the firſt appearance the head makes, when let down into the tun; for if it appear with a large bladdery bubble at firſt, this ſhews there has been ſome miſmanagement, or that the beer is very poor, and whichever of theſe be the caſe, it will not bear to lie and ferment long, leſt all the ſpirit of it ſhould work away; ſo that on the firſt appearance of this kind, you ſhould cleanſe it directly, as ſoon as let down. When the guile, in its firſt appearance of working, ſhews a fine curdly head, (in about twelve or ſixteen hours after its being pitched) in about ſix hours more it will begin to work with a lighter and more frothy head, working perpendicular from the curdly head, and then it muſt be cleanſed, even if its firſt appearance be of this kind, for this is the laſt ſhape in which it ſhould ever appear, before its being cleanſed.

CHAP. CII.

How to hop ſmall Beer.

WHEN ſmall beer is brewed, the hopping it requires no conſideration; for if there be hops enough for the ſtrong beer, there is no fear of the ſmall, provided you make but one barrel of ſmall, to two of ſtrong, and boil them any moderate time.

But for hopping an entire guile of ſmall beer, if you allow to every barrel a buſhel and a half of malt, which is the due medium, you ſhould allow to the ſame barrel a pound and a half of hops: but if you make more beer from the ſame quantity of malts, you muſt allow more hops, in proportion to the quantity of your liquor.

CHAP. CIII.

How to make the moſt of the laſt Wort.

THO' the method I am going to mention, for this end, has never yet been put in practice; yet I am confident it is well worth the trying.

It is this. To preſs the hops as ſoon as they have done draining; for they muſt neceſſarily have ſucked up a great deal of the wort, what exact quantity I will not take upon me to ſay, but I believe from an hundred weight of hops you may get a firkin or more of wort; and they cannot be preſſed too ſoon, becauſe the hotter the wort is that is preſſed from them, the better it will fine itſelf, and by this method you will not only have ſo much wort extraordinary, but that which you gain will be better in its kind than that which runs from the hops by draining, for ſome ſettlement will remain with the hops, part of which by preſſing you will convert to a fluid, and that a very glutinous one, and, of conſequence, of a ſtrong body; and beſides, the wort thus obtained will be much bitterer than the other wort, and conſequently will need leſs hops to ſupport it in its fermentations afterwards.

CHAP. CIV.

When to cleanſe a Guile of pale ſmall Beer.

A Guile of pale ſmall beer is not to be managed, with reſpect to cleanſing in the ſame manner as a guile of brown, becauſe the pale malt from which it is brewed has more ſweetneſs and life than the brown; therefore inſtead of cleanſing a guile of pale ſmall beer, as ſoon as you perceive the firſt appearance of a light frothy head, working perpendicular from the curdly one, you ſhould firſt give it a move and repeat this again every two hours for three or four times, (your eye and taſte muſt be your guides as to the number of times you are to ſtir it) and then cleanſe it. The reaſon of this difference is, that the pale beer, being made from ſweeter and more ſpirited malt, will bear more working in the tun than brown, without danger of growing dead, and by thus ſtirring it you help the virtue of the hop (which in the tun always reſides in the head) to incorporate with it.

CHAP. CV.

How to lay the Malts in the Maſh Tun.

THE method I am going to propoſe tends to maſhing the malts ſooner and with greater eaſe: in general the malt is laid upon a level, but in this common way of managing, as the liquor comes up under the malt, you cannot begin maſhing till almoſt all the liquor is in, and then if you begin maſhing in the middle you will find it very difficult at firſt, and if you begin at the ſides of the tun you will find it ſtill more difficult before you have done; for by beginning at the ſides you are continually driving it to the middle, where it will, by being accumulated there, be harder to be worked than before. But for making the moſt diſpatch with the leaſt labour, you ſhould lay your malt to the top of the tun all round near the ſides, and gradually lower and lower, till towards the middle there be very little; and you ſhould make as many furrows from the ſide of the tun to the middle as you have oars for maſhing it; each of the furrows, the breadth of your oar, and the malt ſhould not lie above ſeven or eight inches deep in them; ſo that as ſoon as the liquor begins to be as high as the malt in the middle, all tbe oars may begin there firſt, and ſo proceed gradually along the furrows; and by this means you not only begin as ſoon as there is a little liquoring, but you work eaſy all the time, as you are not forced to break the main bulk till you find you have plenty of liquor.

CHAP. CVI.

How a Guile of Beer ſhould be moved in the Tun.

IN moving a guile of beer in the tun it is common only to beat in the head, but this is not ſufficient if the wort lie in the tun to the depth of twenty inches or thereabouts; for then by merely beating in the head you never move the under part of the wort, whereas you ſhould endeavour to move the bottom well at firſt, becauſe by doing this you will raiſe the undiſſolved matter, together with the under part of the wort; by which means it will diſſolve more perfectly than if it were to lie quiet at the bottom of the tun; you likewiſe by this motion prevent the under part from being foxed, and cauſe the whole tun to be more regularly fermented, to which the bottom yeaſt, raiſed along with the under part, gives ſome ſmall aſſiſtance.

CHAP. CVII.

How to make the moſt of the Lees in Summer Time.

BEER that is brewed in ſummer-time, and deſigned for immediate drawing, will not admit of the lees going with it, becauſe there will not be time for them to diſſolve to a fluid, and during the warm weather they will always

ways riſe in the beer and make it foul, nor can you expect it ſhould be fine till the weather grows cooler; but it would be prudent to try ſome method of getting as great a body from them as you can. The method I would propoſe is this: when the firſt wort is drawn from the lees take them up and put them in the copper with the following wort, and likewiſe the ſecond wort lees with the laſt wort; for this continual boiling of them will not only get out much of theſe, but alſo ſome of the virtue of the hop; part of which generally remains on the top of the ſettlement. There is another way of diſſolving them, by taking them out of the back and putting them to the maſh; but then you cannot get ſo much of the virtue of the hop as by boiling them, for part of this will remain with the grains.

CHAP. CVIII.

How pale keeping Beer ſhould be yeaſted.

IN giving rules on this head I premiſe by ſuppoſing the beer to be worked in a tun built according to my directions in a former a former chapter, and that the weather is temperate at the time; in this caſe as the malts, from which this kind of beer is produced, are both more free in working and continue in it longer than other malts, the wort will require a greater ſupply of yeaſt to carry on the working properly; and you may begin giving this ſupply when you have let down about a tenth part of the firſt wort, or a twentieth part of the whole guile, more being ready to follow immediately; and then to every fifteen barrels, as ſhall be in the whole guile, you ſhould put one gallon of good yeaſt; ſuppoſing therefore the whole tun to contain thirty barrels, two gallons of good yeaſt is the proper quantity to pitch it with, and the reaſon why you ſhould pitch it to a leſs quantity of wort and with leſs yeaſt for the firſt ſupply is this: as theſe ſorts of worts are more free to work than others, they will require a ſmaller ſupply of yeaſt at firſt to ſet them on work; but as they demand longer purging in the guile-tun before they can be worked far enough to lie quiet in the caſk, after having been properly cleanſed, it is ſufficient if the firſt ſupply be in ſuch a quantity as to ſet the guile on work in about twelve or ſixteen hours after its being pitched, unleſs in very warm weather, and then it is better that it ſhould be longer before it appear on work.

CHAP. CIX.

How a foxed guile of Beer ſhould be yeaſted when it is to be pitched.

I Shall here ſuppoſe the form of the tun and the temperature of the weather to be the ſame as I mentioned in the laſt chapter.

If the worts have been tainted in the under back with what we call the ſharp fox, as all ſharps are a check upon fermentation, this will neceſſarily require more yeaſt to ſet it on working and to continue it therein than that which is foxed in the other backs by the foulneſs of the backs, which inſtead of the fermentation are ſet on working before they be cool; and if they be (as it ought to be) cool when let down, they will be in ſome forwardneſs of working, and of courſe will need the leſs yeaſt to pitch the guile with than that which is infected with the ſharp fox, which in general will require double the uſual quantity of yeaſt: if the worts be infected with a ſtinking taſte an extraordinary ſupply of yeaſt and moving will be neceſſary to aſſiſt the guile in working.

CHAP. CX.

Why no Feed is good for ſour Beer, except a bitter one.

IT is a very common practice among brewers as ſoon as ever they perceive their beer to be a little ſour to give a feed that has ſome ſpirit in it, ſuch as melaſſes, ſugar, fruit, wheat,. *&c.* but this is juſt as abſurd as it would be to throw fuel on a fire, in order to extinguiſh it; for the reaſon of the beer having got ſour is, that the fermenting body was in too great a quantity in proportion to the hops; and if it ſhould of itſelf ferment again it would grow more and more ſour without the addition of any ſuch ſpirituous fermenting

ing bodies, much more with them; where therefore this ſour taſte is not gone too far a very ſtrong bitter may be of ſervice (but no other feed) to ſupport the beer under its fermentations.

CHAP. CXI.

What Order to follow in filling the Store-houſes.

BY not following a proper rule in reſpect to this article, many a guile of beer is ſpoiled; for inſtance, if a brewer have ſeveral ſorts of ſtore-houſes, ſome very cold, ſome very warm, and ſome temperate, even ſuppoſing him to begin filling them as uſual, about Michaelmas, if he ſhould fill the coldeſt firſt, (as is frequently done) though the beer in theſe will not be in danger of getting ſour; yet if the temperate ſtore-houſes be filled next and the warmeſt laſt, ſhould the ſpring prove warm, the beer in theſe would be in danger of getting ſtale, and perhaps a little ſour, for it is a chance whether the liquor ever get cool before it is ſpoiled; for where beer is continually in a mully heat it will be ever on the fret as long as it has any briſkneſs left in it; it will therefore require an additional quantity of hops to prevent it from getting ſour; and if you ſhould work it farther in the tun than ordinary, this might prevent its growing ſour; but the warmth would ſtill cauſe it to get mummy. For preventing therefore theſe hazards, and for ſaving the expence of extraordinary hopping, you ſhould at all events begin to fill the warmeſt ſtorehouſes firſt, the temperate next, and the coldeſt laſt: for then, though there ſhould be ſome warm days after Michaelmas, yet the cold muſt ſoon come on, and there is the whole winter for the beer to lie quiet, and before the warm weather comes on again you may be ſending it out.

CHAP. CXII.

Why old Malts ſhould generally have new Malts mixed with them.

THERE is more ſubſtance and body to be got from old malts than from new malts, becauſe as they grow older they grow ſlacker, and more eaſy to be diſſolved. But theſe ſlack malts have alſo leſs of the fermenting ſpirit in them; and where this ſpirit is wanting, the life of beer is wanting; for which reaſon they ſhould not be uſed by themſelves, but it is always neceſſary to mix ſome new malts with them, and then when they have been worked down in the tun as far as they will bear, theſe new malts will give life to the beer at an alteration of weather for warmth; at which time all beer is liable to ferment: mild beer however may be brewed with all old malt, becauſe as it is to be drawn while new, there is not time for the life of it to be ſpent.

CHAP. CXIII.

How to keep back a Guile of Beer in Caſe of Need.

WHEN need requires this to be done, you muſt always take care that the liquor be let down cool, even in cold weather; and the only inconvenience that attends this proceeding is, that if the weather ſhould prove extreme cold, it will drink chilly, and it may lie a long time in the tun before it be fit to cleanſe, though it will receive no damage if it were to lie for a week before you pitch it, unleſs it lie very deep; for then it may get hot and fret; in which caſe you muſt add a ſupply of yeaſt before it get too warm. In temperate weather if you have occaſion to keep back a guile of beer, you may omit pitching it for one, two, or three days, provided you are careful to ſupply it with yeaſt before it get too warm, which is the chief danger to which it is liable. In very hot weather this way of proceeding will always be attended with danger, and require very great precautions, how cool ſoever you let down the worts.

CHAP. CXIV.

When the extraordinary ſtrong Beer ſhould be brewed.

THIS ſort of beer ſhould be brewed the firſt cool weather after ſummer; for if you ſhould attempt to brew this ſort of beer in warm weather, the warmth of the weather will not allow it to lie in the tun, unleſs it be in ſo ſmall a quantity as that it may not lie above ten inches deep; for this beer, being very ſtrong, demands to be very gradually worked, and longer than beer of leſs ſtrength; for if it ſhould be no longer worked than beer of a middling body, it would never lie quiet after cleanſing till cold weather came, before which time beer of an extraordinary body is of all beer the moſt ſubject to be mummy, and if in ſuch weather you ſhould attempt to work it to the pitch it requires before it had gone through two thirds of its working, it would be in ſome meaſure foxed or yeaſt-bitten, and the more you ſhould endeavour to work it, the more the fox would gather; and beſides, the beer would grow flat and mummy; but by brewing this ſort of beer in cool weather you may bring it to work gradually as it ought; and beſides, this, beer, which of all others ſhould lie quiet a conſiderable time after it is brewed, has by this means the whole winter to reſt in, which reſt is the beſt means to prevent its growing mummy; and for the farther prevention of this it ſhould be put in the cooleſt cellar you have.

CHAP. CXV.

The beſt way of ſtopping a Leak.

THERE are many ſorts of mixtures uſed for ſtopping leaks, ſuch as chalk and tallow, old Cheſhire cheeſe and chalk, whiting and oil, whites of eggs and whiting; but there is one which exceeds all, the ingredients of which are eaſily procured, and that is either ſoft or hard ſoap (I believe the hard ſoap is beſt) and require very great precautions, how cool ſoever you let down the worts.

CHAP. CXIV.

When the extraordinary ſtrong Beer ſhould be brewed.

THIS ſort of beer ſhould be brewed the firſt cool weather after ſummer; for if you ſhould attempt to brew this ſort of beer in warm weather, the warmth of the weather will not allow it to lie in the tun, unleſs it be in ſo ſmall a quantity as that it may not lie above ten inches deep; for this beer, being very ſtrong, demands to be very gradually worked, and longer than beer of leſs ſtrength; for if it ſhould be no longer worked than beer of a middling body, it would never lie quiet after cleanſing till cold weather came, before which time beer of an extraordinary body is of all beer the moſt ſubject to be mummy, and if in ſuch weather you ſhould attempt to work it to the pitch it requires before it had gone through two thirds of its working, it would be in ſome meaſure foxed or yeaſt-bitten, and the more you ſhould endeavour to work it, the more the fox would gather; and beſides, the beer would grow flat and mummy; but by brewing this ſort of beer in cool weather you may bring it to work gradually as it ought; and beſides, this, beer, which of all others ſhould lie quiet a conſiderable time after it is brewed, has by this means the whole winter to reſt in, which reſt is the beſt means to prevent its growing mummy; and for the farther prevention of this it ſhould be put in the cooleſt cellar you have.

CHAP. CXV.

The beſt way of ſtopping a Leak.

THERE are many ſorts of mixtures uſed for ſtopping leaks, ſuch as chalk and tallow, old Cheſhire cheeſe and chalk, whiting and oil, whites of eggs and whiting; but there is one which exceeds all, the ingredients of which are eaſily procured, and that is either ſoft or hard ſoap (I believe the hard ſoap is beſt)

beſt) and chalk, ſcraped as fine as poſſible; of theſe ingredients make a ſtiff paſte and ſpread it over the leak; for this will ſtop a leak of an oil veſſel, and much more of a beer caſk.

CHAP. CXVI.

How ſmall Beer ſhould be managed for long Keeping.

IF you would have this ſort of beer keep a long time before you draw it, it ſhould be more hopp'd than uſual, the back lees ſhould be let go with it, and it ſhould be put in the cooleſt cellar you have; and more hops than uſual are neceſſary for ſupporting it in the fermentations it is liable to undergo: by letting the back lees go with it you get ſtill more of the virtue of the hop, and ſome of the undiſſolved ſubſtance of the malt, which was left with the lees, diſſolves in time and gives a life to the beer, and a cool cellar is a means of its lying quiet from purging; which reſt is very neceſſary to fluids of a weak body, becauſe the oftener ſuch fluids purge, the more apt they are to grow ſour: and if this or any other beer be cleanſed in the place wherein you deſign it ſhall ſtand, it will bear to be worked ſomething farther than if it were to be cleanſed in another place and moved into the cellar afterwards, becauſe that moving will cauſe a freſh purging to come on, which it would not have ſo ſoon if it were cleanſed in the ſame cellar in which it is afterwards to ſtand.

FINIS.

BRITISH
3 AU 78
MUSEUM